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WATER QUALITY BRANCH ACTIVITIES IN NEW BRUNSWICK 1965-1985

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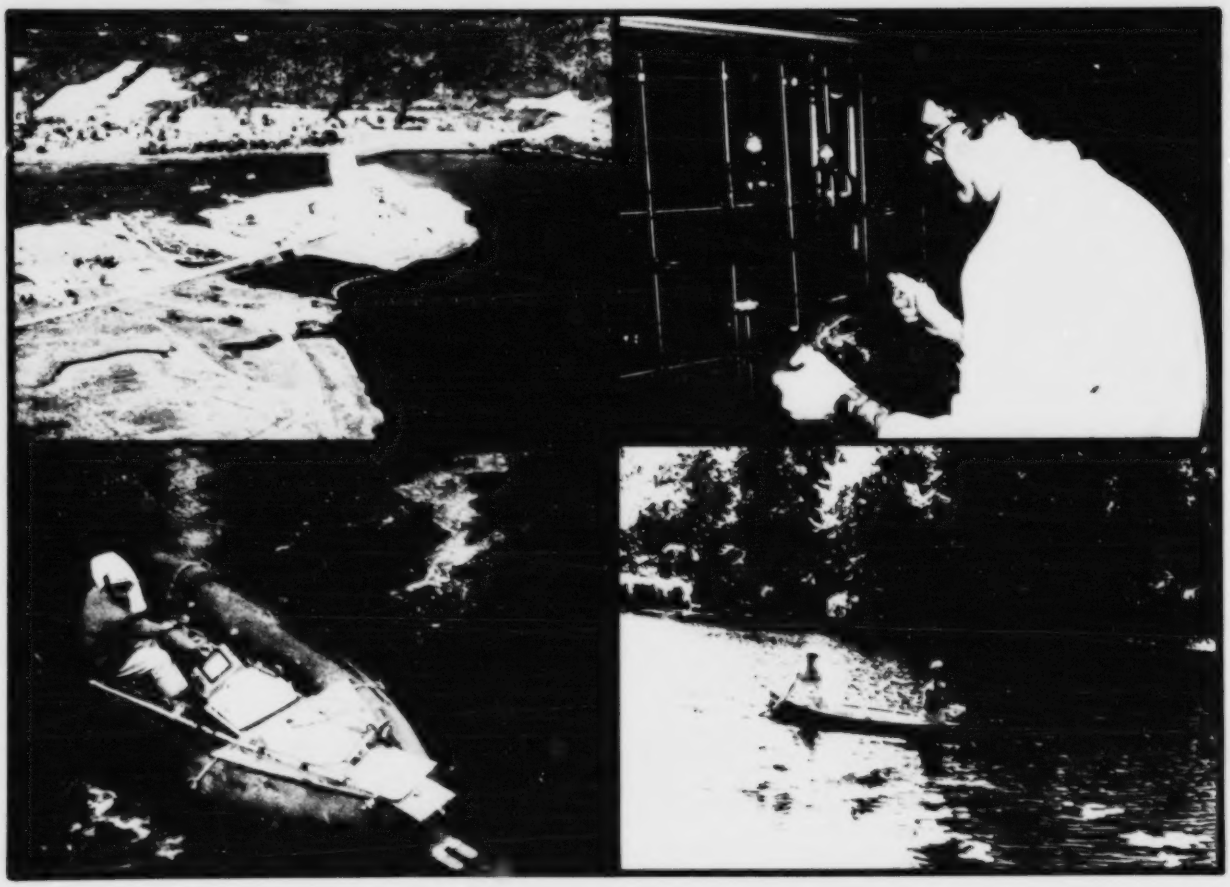

Canada

INLAND WATERS DIRECTORATE
ATLANTIC REGION
WATER QUALITY BRANCH
MONCTON, NEW BRUNSWICK

WATER QUALITY BRANCH ACTIVITIES

IN NEW BRUNSWICK

1965-1985

IWD-AR-WQB-86-108

INLAND WATERS DIRECTORATE
CONSERVATION AND PROTECTION
ENVIRONMENT CANADA

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A copy will be made available in French upon request

CONTENTS

	PAGE
ABSTRACT/RÉSUMÉ	i/ii
AUTHORS' NOTE	iii
ACKNOWLEDGEMENTS	iv
INTRODUCTION	1
HISTORICAL OVERVIEW	4
a) Industrial Waters Section	4
b) Water Quality Division	5
c) Water Quality Branch	5
ACTIVITIES	6
DATA AND REPORTS	15
OUTLOOK FOR THE FUTURE	17
TABLE 1 - WQB Projects	19
TABLE 2 - WQB Supported Projects	21
TABLE 3 - Station Listing	22
APPENDIX I - Federal Legislative Acts Related to Water	43
APPENDIX II - I.H.D. National Water Quality Monitoring	44
APPENDIX III - I.H.D. Research Basin Study	48
APPENDIX IV - Saint John River Basin Study (Task 10A)	49
APPENDIX V - N.B. Surface Water Quality Survey	51
APPENDIX VI - In-house Conductivity Study	58
APPENDIX VII - WQB National Water Quality Monitoring	59
APPENDIX VIII- AWQM Laboratory Program	64

APPENDIX IX - Environmental Monitoring of Forest Insect Control Operations 65
APPENDIX X - International Saint John River Basin Study 70
APPENDIX XI - Atlantic Region Overview Network 72
APPENDIX XII - International St. Croix River Basin 74
APPENDIX XIII- Interprovincial Saint John River Basin Study .. 76
APPENDIX XIV - Interprovincial Restigouche River Basin Study . 77
APPENDIX XV - Dickey-Lincoln School Study 78
APPENDIX XVI - Pollutant Specific Survey 80
APPENDIX XVII- Acid Rain Baseline Sampling Network 83
APPENDIX XVIII- International Saint John River Bacteriological Survey 84
APPENDIX XIX - Toxic Chemical Survey 86
APPENDIX XX - Municipal Water Toxic Chemical Survey 91
APPENDIX XXI - List of Reports, Publications and/or Presentations 93

MAP #1 - I.H.D. National Water Quality Monitoring 105
MAP #2 - I.H.D. Research Basin Study 106
MAP #3 - Saint John River Basin Study (Task 10A) 107
MAP #4 - New Brunswick Surface Water Quality Survey 108
MAP #5 - In-house Conductivity Study 109
MAP #6 - WQB National Water Quality Monitoring 110
MAP #7 - AWQM Laboratory Program 111
MAP #8 - Environmental Monitoring of Forest Insect Control Operations 112
MAP #9 - Atlantic Region Overview Network 113

MAP #10 - International Saint John River Basin Study 114
MAP #11 - International St. Croix River Basin Study 115
MAP #12 - Interprovincial Saint John River Study 116
MAP #13 - Interprovincial Restigouche River Basin Study 117
MAP #14 - Dickey-Lincoln School Study 118
MAP #15 - Toxic Substances Monitoring 119
MAP #16 - Acid Rain Baseline Sampling Network 120
MAP #17 - Saint John River Bacteriological Survey 121
MAP #18 - Toxic Chemical Survey 122
MAP #19 - Municipal Water Toxic Chemical Survey 123

ABSTRACT

This report gives a brief chronological overview of Water Quality Branch activities in the Province of New Brunswick. It is not designed to be an exhaustive treatise but only to present highlights of the work accomplished over the 1965-1985 period.

This document summarizes the background of the Water Quality Branch programs, projects and studies, explaining when and why they were initiated, how they were conducted and what type of data were generated. It elucidates how the Water Quality Branch evolved over the years in response to new policies and changing institutional needs. It was written with the expectation that reflection on past activities would germinate the seeds for future useful, joint Federal/Provincial scientific endeavors.

RÉSUMÉ

Le présent rapport donne un bref aperçu chronologique des activités de la Direction de la qualité des eaux dans la province du Nouveau-Brunswick. Cet ouvrage ne constitue pas une analyse détaillées des activités, mais il vise plûtot à signaler les faits saillants des travaux accomplis pendant la période 1965-1985.

Le document expose l'origine des programmes, projets et études de la Direction de la qualité des eaux; il précise également le démarrage et le pourquoi des travaux, la façon dont ils ont été menés, ainsi que le genre de données qui en sont découlées. De plus, il explique comment la Direction de la qualité des eaux s'est adaptée au cours des années aux nouvelles politiques et aux besoins variés des établissements. Il a été rédigé dans l'espoir que la rétrospective d'activités passées favorise la conclusion de futures ententes scientifiques profitables entre le gouvernement fédéral et la province.

AUTHORS' NOTE

It should be noted that this report is an update of an original document prepared by P.E. Belliveau and D.M. Lockerbie in 1981 entitled, "Water Quality Branch Activities in New Brunswick: 1965-1980". The decisions to update the document was based on two factors; the first being the frequent demand for the original report which is now out of print and the second being the number of changes the Water Quality Branch has undergone over the past five years as it endeavored to respond to new and changing requirements. It is hoped that this updated version will prove even more worthwhile than the first edition.

ACKNOWLEDGEMENTS

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INTRODUCTION

The Water Quality Branch, Inland Waters Directorate, Atlantic Region, conducts water quality surveys and studies designed specifically to provide ambient water quality data and interpretive information to water resource managers and pollution control agencies. Its present role is to:

1. Provide scientific and technical information and advice to government, private agencies and the public, and to promote the wise management of the quality of waters;
    (a) shared by Canada and the United States, and by one or more provinces and/or territories;
    (b) on federal lands such as national parks, Indian reserves and heritage canals, and other properties and facilities where water resource management is primarily a federal responsibility;
    (c) where there is federal responsibility such as for fisheries and wildlife.

2. Detect emerging water quality problems and to evaluate water quality issues on Canada's inland waters from a regional and national point of view.

The Branch's mandate to participate in these activities is derived from the various Federal Legislative Acts listed in Appendix I and from the Federal Policy Statement on Inland Waters (1978). The Water Quality

Branch has no regulatory or enforcement functions and its activities are limited to the inland aquatic environment.

The Water Quality Branch's principal areas of interest are:

- international and interprovincial waters;
- waters located in the territories, on federal lands or waters of significant national interests;
- waters affected by long-range transport of airborne pollutants (LRTAP);
- waters affected by toxic chemicals;
- freshwater used as supplies for human consumption;
- water quality conservation; and
- Canadian Water Quality Guidelines.

The Branch also negotiates and implements Federal-Provincial Water Quality Monitoring Agreements and provides advice, leadership and expertise in the development of Water Quality Objectives.

The data generated are used in the identification of emerging environmental problems and water quality trends, the production of data

and interpretive reports,and as a data bank for water resource managers. All data collected are stored on the Water Quality Branch's National Water Quality Data Bank (NAQUADAT) and are available to users at minimal charge.

HISTORICAL OVERVIEW

a) Industrial Waters Section

In the early 1930's, the Federal Government, recognizing the emerging significance of water quality in Canada, created the Industrial Waters Section within the Mines and Geological Branch of the Department of Mines and Technical Surveys. This action was in response to requests from Canadian Manufacturers, especially those of pulp and paper, and of soap, to study the natural and treated waters of Canada. Although this Section's work was curtailed during WW II it resumed in 1946 and continued with little modification until the early 1960's.

During the 1950's and early 1960's, the Industrial Waters Section's emphasis shifted slightly to the collection of aquatic chemical data having geological significance, from major bodies of water across Canada, and the reporting of these data in a technical bulletin series entitled "Industrial Waters of Canada". In order to accomplish this task, Canada was divided into eighteen large drainage basins and water quality surveys were carried out at a rate of one or two basins per year. Aside from these surveys, the Section also provided operational and advisory services to other departments on corrosion control, boiler feed-water treatment, and treatment of water supplies for non-potable use.

b) Water Quality Division

In the mid-1960's, because of its expertise in analyzing water samples and in assessing water quality, this unit was the logical choice for expanding the role of the Federal Government in the field of water quality. Upon Departmental reorganization, the expanded Industrial Waters Section became the Water Quality Division within the Inland Waters Branch of the Department of Energy, Mines and Resources. The responsibilities of this new Division were to collect, interpret and disseminate data on the quality of freshwater in Canada, with the expressed purpose of identifying areas of pollution, establishing baselines of quality and monitoring these waters so that they would be properly used, managed and developed. With the establishment of a regional laboratory in Halifax (1964), which was later moved to Moncton (1966), the Water Quality Division also initiated the provision of laboratory support to provincial agencies requiring water analysis. The original aim was to provide this service to the provinces only until they could develop their own laboratory capabilities. This action resulted in dividing Water Quality Division activities into two main categories: those conducted as part of the operational programs (Table 1) and those which were carried out in support of other agencies (Table 2). This report focusses only on the former type of activities.

c) Water Quality Branch

In 1971, as a result of the Department of the Environment Act (1970), the Water Quality Division was transferred to the new Department

of the Environment and became the Water Quality Branch of the Inland Waters Directorate. Its assigned responsibilities were focussed on environmental concerns. In essence, its new role was to provide ambient water quality data and interpretive information to water resource managers and pollution control agencies. This information was to be employed for environmental assessment studies, pollution control legislation, assessment of the suitability of water for domestic and industrial uses, research and for input to federal/provincial and international agreements and commitments.

ACTIVITIES

The Water Quality Branch's first major monitoring effort was the International Hydrological Decade (I.H.D.) National Water Quality Monitoring Program (1965-1974). The overall aim of this UNESCO Program, in the field of hydrology, was described as:

> "to accelerate the study of water resources and the regiment of waters with a view of their rational management in the interest of mankind; to make known the need for hydrological research and education in all countries; and to improve their ability to evaluate their resources and use them to the best advantage".

In Canada, the Water Quality Branch's aim was to establish and maintain a national water quality and pollution evaluation network and to obtain a nationwide baseline inventory of surface water quality. In New Brunswick, the program consisted of monthly sampling by lay

collectors at sixty-eight water quality stations for a broad range of parameters. As such, the program provided useful estimates of water quality conditions at selected sites and proved helpful for long range planning. A short description of this project is given in Appendix II.

Concurrently, as an adjunct to this project, the I.H.D. Research Basin Study was also implemented. This was a multi-agency study which was designed to provide hydrological data from "representative watersheds". Measurements were to be performed on all parameters in the hydrological cycle, so that statistical and/or physical models could be developed for major climatic and geological areas. Principles derived from these models were to be used to synthesize the hydrological characteristics of ungauged areas. One of these research basins was situated in New Brunswick in the North Nashwaaksis Stream Basin (Appendix III).

During the late sixties and early seventies the Water Quality Branch placed considerable emphasis on the abatement of pollution for industrial wastes, particularly from mining and milling operations. In New Brunswick the Branch stepped up its monitoring of water quality in streams in the base-metal mining area of Newcastle-Bathurst. These studies, which were designed to determine the effects of mine-wastewater discharges on salmon fisheries, were carried out in cooperation with the New Brunswick Water Authority, the Department of Fisheries, the Fisheries Research Board and the mining companies. All monitoring and analysis activities performed by the Water Quality Branch were incorporated into existing on-going projects and not identified as a

separate program.

In June 1971, the Water Quality Branch launched its first comprehensive basin study in New Brunswick. The aim of the Saint John River Basin Study, labelled Task 10A (Appendix IV), was to collect, analyze and store sufficient water quality data to allow the Saint John River Basin Board to develop a multi-use basin plan. All phases of this monitoring program, including the collection of samples, were for the first time conducted by Water Quality Branch staff. In 1972, the Water Quality Branch initiated its first major survey for toxic substances by collecting water samples from one hundred and twenty-six surface water sites in the Province and analyzing these for mercury, cadmium and selected organochlorine pesticides (Appendix V). The following year, in an effort to enhance its confidence in the data collected, the Water Quality Branch started evaluating its field methodology and launched a special study on sampling frequencies (Appendix VI).

When the I.H.D. National Water Quality Monitoring Program terminated in 1974, the Water Quality Branch reassessed the need to continue this type of program. The emphasis of the I.H.D. program had been on maintaining a resource inventory but the mandate of the Water Quality Branch had been expanded when it became part of the Department of the Environment. There was now a responsibility to examine water quality in relation to a wider range of water uses. Accordingly, it was realized that the need existed for on-site field measurements and specialized sampling procedures thereby necessitating the replacement of lay collectors with qualified field staff.

In April 1974 the I.H.D. National Water Quality Monitoring Program was replaced by an expanded Water Quality Branch National Water Quality Monitoring Program (Appendix VII) which, in New Brunswick, consisted of quarterly sampling by Branch staff at seventy-seven sites. The employment of in-house staff to conduct the field work meant that the Branch could now gather field data on such parameters as dissolved oxygen, pH and specific conductance and it could also broaden its chemical, physical and biological parametric capability. As a result, the data generated by this study included major ions (calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride), total hardness, physical parameters (pH, colour, turbidity, suspended solids, specific conductance and temperature) and biological constituents (chlorophyll a, bacteria, etc.). Nutrients such as phosphorus, nitrogen, carbon and silica were also measured routinely. In addition, toxic and other substances including metals and trace elements, pesticides, phenolic materials and cyanides were periodically determined at selected sites. It should be emphasized that for this particular monitoring study, sampling stations were located with a view of observing general overall water quality conditions in rivers and streams rather than to study local and regional conditions in detail.

In the early seventies, at the request of the Provincial Government, the Water Quality Branch installed eight Automatic Water Quality Monitors (AWQMs) in the Saint John River Basin. These AWQMs were located at Apohaqui, Mactaquac, Belleville, Centreville, Florenceville, Beechwood, Tinker and Grand Falls and each one measured dissolved oxygen, temperature, specific conductance, pH, chloride and

turbidity once every hour. By 1975 the program was fairly operational and attention was focussed on the data collected. A special study was therefore conducted to determine the correlations between parameter levels measured by the AWQM and those measured on grab samples taken from the AWQM sample chamber (Appendix VIII). The results were not promising and this set the stage for the eventual termination of the AWQM program.

During the summer of 1976, the Water Quality Branch started a series of different studies aimed at investigating the pathways, persistence and fate of the various pesticides applied to New Brunswick forests for the control of the Spruce Budworm (Appendix IX). In total eighteen different studies were conducted between 1976 and 1980.

A review of Departmental activities in 1977-78 coincided with the development of new federal policies concerning inland waters. A number of these policies had significant impact on Branch monitoring programs. New federal priorities required the Branch to redefine its existing programs and to concentrate on boundary water issues. Furthermore, guidance was given as to the types of issues which should be addressed. These included identification of pollution problems, trend assessment, surveillance of water quality objectives and the assessment of the effectiveness of regulatory measures. The demand was no longer for data only but for interpretation of these data.

As a first step, the routine ambient water quality monitoring sites in the Atlantic Region were considerably reduced so as to include only

stations of direct federal interest. In New Brunswick, this meant a reduction from seventy-seven sites to thirteen. This new program, called the Atlantic Region Overview Network (Appendix X), was designed to maintain continuity of data and also to maintain regional inventory of baseline information for:

(1) the periodic assessment of the quality of the Atlantic Region's aquatic environment;

(2) the determination of gross trends in the aquatic environment; and

(3) the fulfillment of the Water Quality Branch commitment to provide International Agencies with ocean input data.

Water samples were collected on a bimonthly basis by trained Water Resources Branch field technicians and shipped to the Moncton Laboratory for analysis of physical parameters, major ions and trace metals.

In addition to the Atlantic Region Overview Network, five other projects in interjurisdictional waters were implemented in 1978. These were the International Saint John River Basin Study (Appendix XI), the International St. Croix River Basin Study (Appendix XII), the Interprovincial Saint John River Basin Study (Appendix XIII), the Interprovincial Restigouche River Basin Study (Appendix XIV) and the Dickey-Lincoln School Study (Appendix XV). The International Saint John River Basin Study and the International St. Croix River Basin Study consisted of a total of 21 sampling stations all located in interjurisdictional waters. These stations were sampled, on the

average, eight times per year with the expressed purpose of verifying that water management actions and activities on either side of the international border were not deleterious to the other side. The data collected from these sites were routinely compared to established water quality objectives. These two studies have evolved over the years and some of the original stations have been dropped and new ones have been added.

The Interprovincial Saint John and the Interprovincial Restigouche River Basin Studies were implemented in order to acquire background information required for the initial chemical characterization of these interjurisdictional waters, the development of water quality objectives and the initiation of water quality trend assessments.

The Dickey-Lincoln School Study (Appendix XV) was undertaken as a result of an American proposal to construct a hydroelectric power dam on the Saint John River a few miles upstream from the international border. Since the downstream water quality impact of this proposed development was identified as a concern to the Canadian Government, the Water Quality Branch was assigned the task of gathering pre-construction water quality data in order to support future bilateral negotiations should the Americans proceed with the development. In view of this, a study involving physical, chemical and biological water quality monitoring was initiated in 1978.

In July 1979, the Water Quality Branch implemented the first of a series of pollutant specific surveys (Appendix XVI). The aim of these

surveys was to screen for specific environmental contaminants (toxic substances), covering as broad a geographical area as possible and concentrating on perceived critical areas or in areas of federal interest. In New Brunswick, these pollutant specific surveys were conducted annually until 1982. It should be noted, however, that the parameters screened varied from year to year. By the completion of this project, the following parameters had been screened: pentachlorophenols, chlorobenzenes, mirex, mercury, triaryl phosphates, phthalate esters, lead, arsenic, PCB, cadmium and polynuclear hydrocarbons.

The Acid Rain Baseline Sampling Network (Appendix XVII) was also initiated in 1979. The purpose of this long-term study was to maintain a network of benchmark surface water stations in order to delineate temporal trends in parameters sensitive to acid rain.

In order to assess the bacteriological water quality of the international portion of the Saint John River, a series of bacteriological surveys were conducted between 1982 and 1984. Total and fecal coliforms and fecal streptococci were measured in samples taken from various sites in the Basin (Appendix XVIII).

As a follow up to the Pollutant Specific Surveys completed in 1982, Toxic Chemical Surveys (Appendix XIX) were conducted in New Brunswick, in the Saint John River Basin in 1983, and the Northwest Miramichi River Sub-basin in 1984. This study involved the collection and analysis of water, bottom sediments and fish for a large number of possible

environmental contaminants.

Finally, in May 1985, a Municipal Water Toxic Chemical Survey was implemented jointly with the New Brunswick Department of Health (Appendix XX). The objectives of this project were to screen for specific environmental contaminants in raw domestic water sources in the province, and to collect general water quality data. Sampling is done twice a year (spring and fall) and the samples are analyzed for a large number of parameters.

All of these projects are described in detail in the appended material. Each Appendix outlines the project title, submitter I.D., period of record, objective(s), field sampling staff, parameters analyzed, NAQUADAT station numbers, station descriptions and the approximate number of samples analyzed at each station. Corresponding station reference numbers are also given. Maps have been appended to facilitate the location of sampling sites. A complete station listing, describing the exact location of each station is presented in Table 3.

DATA AND REPORTS

Traditionally water quality data were handled by manual means, however, as the quantity of data increased, the Water Quality Branch was soon overwhelmed by manual filing and sorting methods. The need for flexibility and speed in retrieving data (in a variety of formats) also became important as the Branch started focussing on data interpretation. This led to the introduction of a computerized data handling system called NAQUADAT (National Water Quality Data Bank). NAQUADAT provides a flexible system for storing the results of environmental analyses and other pertinent information related to the samples and the sampling station, and for producing a large variety of retrieval reports, statistical analyses and graphical presentations. In general, all of the data from the projects listed in Table 1 and 2 are stored on NAQUADAT. These data are available from the Water Quality Branch Head Office in Ottawa and some are also available regionally from the Moncton Office.

Recently, the Water Quality Branch in Moncton, reacting to technological advances and responding to regional requirements for storage, management and interpretation of water quality data, acquired a VAX 11/750 computer and equipped it with the RS-1 statistical software package. This VAX 11/750 computer is also used to run the LABS-11 laboratory data management system and various other programs. Branch staff have also recently developed the NABIODAT data management system. This system will be used for storage and processing of biological data and is in direct response to the growing biological components of water

quality monitoring and survey studies being conducted.

To date the Water Quality Branch has prepared or has participated in the preparation of fifty-six reports, publications and/or presentations utilizing water quality data and aquatic information gathered in New Brunswick. These are listed in Appendix XXI.

OUTLOOK FOR THE FUTURE

The Water Quality Branch has conducted a number of aquatic environmental studies in New Brunswick over the past twenty years, however, there is still a lot of work to be done. The vastness of the Province, the hydrological variability and the severity of the winter makes the collection of aquatic environmental data difficult, time consuming, and manpower intensive. Yet, these dynamic hydrological conditions make it necessary to maintain on-going monitoring programs in order to keep water quality data relevant to current needs.

Awareness within the scientific community and the public at large of the susceptibility of the aquatic environment to degradation has increased in recent years. This has resulted in a shift of emphasis from routine ambient water quality monitoring to issue oriented studies. Analysis of Departmental priorities indicate that future Water Quality Branch activities in New Brunswick will probably focus on the following:

(1) Issue oriented studies on the Saint Croix River;
(2) Issue oriented studies in the interjurisdictional portions of the Saint John River Basin;
(3) Toxic substances studies including studies on the impact of LRTAP on surface water;
(4) Development of water quality objectives; and
(5) Federal/Provincial cooperation in data acquisition, analysis, storage, interpretation and dissemination.

It is felt that through increased federal/provincial cooperation, effected by joint planning and work sharing, the future could be more productive for both levels of government. This is the opportunity we are now presented with and should be exploring in order to meet future requirements.

TABLE 1

SUMMARY OF WQB PROJECTS

1965-1985

APPENDIX #	PROJECT TITLE	SAMPLING PERIOD	STATIONS	SAMPLES ON FILE	FREQUENCY OF SAMPLING
II	I.H.D. National Water Quality Monitoring	1966-1974	68	3195	Monthly
III	I.H.D. Research Basin Study	1970-1974	2	79	Monthly
IV	Saint John River Basin Study (Task 10A)	1971-1973	29	1829	Monthly
V	N.B. Surface Water Quality Survey	1972	126	126	Once
VI	In-house Conductivity Study	1973	4	80	1/week
VII	WQB National Water Quality Monitoring	1974-1978	77	1595	4/year
VIII	AWQM Laboratory Program	1975-1976	7	560	Irregular
IX	Environmental Monitoring of Forest Insect Control Operations	1976-1980	53	400	Irregular
X	Atlantic Region Overview Network	1978-1985	9	369	6/year
XI	International Saint John River Basin Study	1978-1985	20	770	8/year
XII	International St. Croix River Basin	1978-1985	10	490	8/year
XIII	Interprovincial Saint John River Basin Study	1978-1983	3	60	4/year
XIV	Interprovincial Restigouche River Basin Study	1978-1983	5	175	7/year

TABLE 1 Cont'd

APPENDIX #	PROJECT TITLE	SAMPLING PERIOD	STATIONS	SAMPLES ON FILE	FREQUENCY OF SAMPLING
XV	Dickey-Lincoln School Study	1978-1982	3	48	4/year
XVI	Pollutant Specific Survey	1979-1982	31	180	Irregular
XVII	Acid Rain Baseline Sampling Network	1980-1985	4	280	Monthly
XVIII	International St. John River Bacteriological Survey	1982-1984	19	283	Irregular
XIX	Toxic Chemical Survey	1982-1984	15	180	Irregular
XX	Municipal Water Toxic Chemical Survey	1985	10	20	2/year
			TOTAL	10,720	

TABLE 2

SUMMARY OF WQB SUPPORTED PROJECTS [a]

1965-1985

PROJECT TITLE	CLIENT	SAMPLING PERIOD	STATIONS	SAMPLES ON FILE
N.B. Mine Water Quality	DFO-EPS	1965-1974	120	2760
Fundy Park Study	Parks Canada	1966-1972	18	120
Well Water Survey	N.B. DOE	1966-1972	35	45
Various Fisheries Study	Fish & Wildlife Branch (NB)	1967-1972	152	284
Fish Habitat Study	Mactaquac Fish Culture Station (DFO)	1968-1973	17	34
Various Regulatory Programs	N.B. Water Authority	1968-1973	114	315
National Park Survey	CWS	1970-1975	50	81
Summer Student Study	University of Moncton	1971	44	60
Water Supply Study	City of Fredericton	1971-1973	16	26
WQD Municipal Water Survey (NTA)	CCIW, Burlington	1971	10	10
Saint John River study	Saint John River Basin Board	1972	9	83
Cove Brook study	EPS	1972	5	68
Curventon Fence Study	EPS	1972-1975	2	541
Waterfowl Area Survey	CWS	1973-1975	8	168
Atlantic Surveillance Network	EPS	1974-1976	63	819
Radioisotope Monitoring Network	NWRI	1981-1985	3	121
Organotin Survey	NWRI	1984-1985	12	48
			TOTAL	**5583**

a = Other projects were supported in the late sixties and early seventies but the data for these were not placed on NAQUADAT

TABLE 3

STATION LISTING

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AD0001	Saint John River at Clair at Bridge, Boundary Plaque (WSC Gauge), Madawaska County	287
00NB01AD0002	Madawaska River at TCH Bridge, Edmundston, Madawaska County	13
00NB01AD0003	Baker Brook at Baker Brook, Madawaska County	1
00NB01AD0004	Caron Brook at Caron Brook, Madawaska County	1
00NB01AD0008	Saint John River at Hwy Bridge, (WSC Gauge), Edmundston, Madawaska County	38
00NB01AD0009	Little River at Hwy Bridge near Pelletier Mills, Madawaska County	16
00NB01AD0010	Foley Brook immediately above Hwy, 3.2 km SW of Connors, Madawaska County	1
00NB01AD0011	Grew Brook immediately above Hwy, 4.5 km SW of Connors, Madawaska County	1
00NB01AD0012	Madawaska River at Road Bridge at St. Jacques, Madawaska County	33
00NB01AD0013	St. Francis River above Mouth at Picnic Site, Madawaska County	125
00NB01AD0015	Madawaska River 9.7 km NW of St. Jacques at Quebec Border (left Bank), Madawaska County	46
00NB01AD0016	Madawaska River at Power Plant Tailrace, Edmundston, Madawaska County	86

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AD0017	Saint John River above confluence with Caron Brook at AWQM site	69
00NB01AD0019	Baker Brook at Hwy 120 Bridge in Baker Brook, Madawaska County	37
00NB01AD0024	Saint John River approx. 0.8 km downstream of Mouth of St. Francis River at mouth of Grew Brook	16
00NB01AD0025	Saint John River approx. 5 km upstream of Clair-Fort Kent International Bridge near Western tip of Kennedy Island	16
00NB01AD0031	Saint John River 1 km upstream of mouth of St. Francis River	5
00NB01AD0032	Saint John River at St. Francis at western tip of Hunnewell Island	20
00NB01AD0033	Saint John River at St. Francois-de-Madawaska, 300 m below Cranberry Island	10
00NB01AD0035	Mill Stream North of St. Francois-de-Madawaska at Hwy	8
00NB01AD0036	Vasser Brook 3.5 km West of Clair at Hwy 205	6
00NB01AD0037	Thompson Brook at Bridge, 0.5 km north of Clair	6
00NB01AD0038	Pelletier Brook at Caron Brook at Hwy 205	8
00NB01AD0039	Felix Martin Brook at Hwy 120 near St. Hilaire	6
00NB01AD0040	St. John River below Edmundston, 1 km above confluence of Iroquois River	8
00NB01AF0001	Little River at Mouth at Grand Falls Bridge, Victoria County	40
00NB01AF0002	Saint John River from center of Int'l Bridge, St. Leonard, Madawaska County	178

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AF0003	Salmon River at Hwy 125 Bridge, Victoria County	35
00NB01AF0005	Saint John River at Brooks Bridge near Limestone, Mid-river	120
00NB01AF0008	Stream near Morell at Hwy crossing, Victoria County	8
00NB01AF0009	Rapide de Femme Creek near Grand Falls Bridge, Victoria County	1
00NB01AF0010	Poitras Brook at Powers Creek, Madawaska County	1
00NB01AF0011	Powers Brook at Powers Creek, Madawaska County	1
00NB01AF0012	Mill Stream at Bellefleur Madawaska County	1
00NB01AF0013	Grand River at Hwy 2 Bridge 2.6 km north of St. Leonard, Madawaska County	61
00NB01AF0014	Siegas River at Siegas, Madawaska County	8
00NB01AF0015	Quisibis River at Hwy 2 Bridge, Madawaska County	8
00NB01AF0016	Green River at TCH Bridge 1.3 km SE of Green River, Madawaska County	1
00NB01AF0017	Stream 2.2 km north of Green River at Hwy 2 bridge near St. Basile	1
00NB01AF0018	Laudie Brook near Iroquois, Madawaska County	1
00NB01AF0019	Iroquois River in Iroquois, Madawaska County	8
00NB01AF0021	Green River 4 km above mouth at Bridge (WSC Gauge), Madawaska County	111
00NB01AF0022	Saint John River in Grand Falls Headpond near AWQ Monitor, Victoria County	74

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AF0023	Grand River at TCH Bridge, 3.3 km NNW of St. Leonard, Madawaska County	32
00NB01AF0038	Saint John River at Saint Basile above sewage plant	9
00NB01AF0039	Saint John River at Saint Basile below sewage plant	8
00NB01AG0002	Aroostook River at TCH Bridge at Four Falls, Victoria County	40
00NB01AG0003	Limestone River at Picnic Site at Four Falls (WSC Gauge), Victoria County	178
00NB01AG0008	Aroostook River 10 m above junction with Limestone River 7 m from Left Bank, Victoria County	1
00NB01AG0009	Aroostook River in Tinker Headpond at AWQ Monitor, Victoria County	99
00NB01AH0002	Tobique River at Hwy 385 Bridge, Riley Brook (WSC Gauge), Victoria County	72
00NB01AH0007	Plaster Rock Water Supply - Tobique River at Intake	2
00NB01AJ0002	Saint John River from center of Hwy Bridge, Perth Andover, Victoria County	46
00NB01AJ0006	Presquile River at Bridge in Tracey Mills, Carleton County	19
00NB01AJ0007	Meduxnekeag River at Hwy 2 Bridge at Woodstock, Carleton County	63
00NB01AJ0009	Saint John River 1.5 km south of Florenceville near AWQM Monitor, Carleton County	45
00NB01AJ0011	Saint John River above McCains, 2.6 km NE of Florenceville (WSC Gauge), Carleton County	38
00NB01AJ0012	Big Presque Isle Stream 100 m East of Int'l Border approx. 2 m from North Bank	201

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AJ0013	Saint John River at Centre of Covered Bridge at Hartland, Carleton County	38
00NB01AJ0014	Saint John River at Grafton Bridge at Woodstock (WSC Gauge), Carleton County	71
00NB01AJ0015	Meduxnekeag River at Belleville near intake of AWQ Monitor, Carleton County	235
00NB01AJ0029	Meduxnekeag River at Bridge above junction with Mill Stream, Belleville, Carleton County	133
00NB01AJ0030	Saint John River in Beechwood Headpond at Power Dam near AWQ Monitor, Carleton County	35
00NB01AK0001	Saint John River North side Landing of Former McKinley Ferry (WSC Gauge) York County	101
00NB01AK0002	North Nashwaaksis Stream at Hwy 620 Bridge (Royal Road) (WSC Gauge), York County	69
00NB01AK0003	North Nashwaaksis Stream at Hwy 620 Bridge on Sandwith Farm, (WSC Gauge) York County	68
00NB01AK0017	Shogomoc Stream, North side of TCH Bridge (WSC Gauge), York County	38
00NB01AK0031	Saint John River in Mactaquac Forebay at AWQ Monitor, York County	3
00NB01AL0003	Nashwaak River at Durham Bridge (WSC Gauge), York County	36
00NB01AL0006	Nashwaak River at Bridge in Nashwaak Bridge, York County	26
00NB01AL0007	Nashwaak River at CPR Bridge, Barkers Point, York County	22

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AM0001	North Branch Oromocto River at Tracy, (WSC Gauge), Sunbury County	127
00NB01AM0003	Oromocto River at Hwy 7n Bridge, Oromocto, Sunbury County	25
00NB01AN0001	Salmon River at Hwy 123 bridge, Gaspereau Forks, Queens County	117
00NB01AN0010	Salmon River mouth at Former O'Leary Ferry Crossing, Queens County	5
00NB01AØ0001	Little River at Hwy 10 Bridge 1.5 km North of Ripples, Sunbury County	35
00NB01AØ0002	Newcastle Creek, East of Minto, Queens County	30
00NB01AØ0003	Jemseg River at Old Bridge Abutment (WSC Gauge), Jemseg, Queens County	73
00NB01AØ0004	Saint John River at Burton Bridge (WSC Gauge), Maugerville, Sunbury County	64
00NB01AØ0005	Saint John River at Lower Gagetown	59
00NB01AØ0007	Oromocto Water Supply - Saint John River at public landing just below Burton Bridge	2
00NB01AØ0015	Cumberland Bay Stream at Hwy 10 Bridge, Cumberland Bay, Queens County	1
00NB01AØ0016	Coal Creek at Road Bridge about 3 km SE of Dufferin, Queens County	1
00NB01AP0001	Canaan River at Hwy 112 Bridge (WSC Gauge), East Canaan, Queens County	78
00NB01AP0002	Kennebecasis River at Hwy 880 Bridge, Apohaqui, Kings County	197

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AP0007	Little River at Silver Falls, Saint John County	37
00NB01AP0008	Kennebecasis River near Crockets Corner Bridge, Kings County	1
00NB01AP0019	Belleisle Creek at Hwy Bridge, Springfield, Kings County	1
00NB01AP0020	Canaan River NE of Brookvale, Queens County	1
00NB01AP0021	Otnabog River at Hwy 102 Bridge, about 5 km NW of Queenstown, Queens County	21
00NB01AP0030	Kennebecasis River at TCH Bridge, 19.2 km east of Sussex, Kings County	29
00NB01AP0031	Kennebecasis River at Poultry Farm Road 1.2 km West of Crockets Corner, Kings County	20
00NB01AP0032	Kennebecasis River at covered bridge about 2.4 km NE of Sussex, Kings County	20
00NB01AP0033	Nerepis River at Hwy Bridge, Nerepis, Kings County	22
00NB01AP0034	Kennebecasis River at Bridge, Hampton, Kings County	21
00NB01AP0035	Saint John River at Lower Gagetown from Ferry in midstream, Queens County	6
00NB01AQ0001	Lepreau River at Hwy 1 Bridge, Lepreau (WSC Gauge), Charlotte County	147
00NB01AQ0002	Magaguadavic River at Covered Bridge at Second Falls (WSC Gauge), Charlotte County	79
00NB01AQ0023	Musquash River (West Branch) Penstock Intake, Saint John County	36
00NB01AQ0031	Magaguadavic River at Hwy 3 Bridge at Brockway, York County	17

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01AR0001	St. Croix River at International Bridge, Milltown, Charlotte County	238
00NB01AR0002	St. Croix River at International Bridge (WSC Gauge), St. Croix, York County	118
00NB01AR0007	Bocabec River at Outlet of Kerr Lake (WSC Gauge), Charlotte County	37
00NB01AR0008	Chamcook Stream at Little Chamcook Lake outlet (WSC Gauge), Charlotte County	31
00NB01AR0009	Dennis Stream at Hwy 1 Bridge (WSC Gauge), St. Stephen, Charlotte County	37
00NB01AR0010	Digdeguash River at Rolling Dam, Charlotte County	35
00NB01AR0011	Grand Lake Outlet at Hwy 122 Bridge, Forest City, York County	56
00NB01AR0013	St. Croix River at Kellyland	60
00NB01AR0014	St. Croix River 200 m below Woodland Mill, USA side	60
00NB01AR0017	St. Croix River at Baring RR Bridge, USA side	44
00NB01AR0018	St. Croix River at Baring RR Bridge, Mid river	44
00NB01AR0019	St. Croix River at Baring RR Bridge, Canadian side	44
00NB01AR0020	St. Croix River at Milltown, USA side	52
00NB01AR0021	St. Croix River at Milltown, Canadian side	52
00NB01BA0001	Restigouche River at Montgomery Bridge above confluence with Kedwick River (WSC Gauge)	35

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BB0007	Kedgwick River at confluence with Restigouche River, Restigouche County	35
00NB01BC0001	Restigouche River approx. 0.6 km down stream of confluence with Kedgwick River (WSC Gauge)	80
00NB01BE0001	Upsalquitch River at RR Bridge (WSC Gauge), Upsalquitch Station, Restigouche County	144
00NB01BE0008	Upsalquitch River above confluence with Berry Brook, Restigouche County	10
00NB01BE0009	Berry Brook below confluence with Little Berry Bkrook, Restigouche County	10
00NB01BJ0001	Nash Creek at Nash Creek, Restigouche County	1
00NB01BJ0003	New Mills River at Hwy Bridge, New Mills, Restigouche County	1
00NB01BJ0004	South Charlo River at Hwy 11 Bridge, River Charlo, Restigouche County	1
00NB01BJ0005	Charlo River at Hwy 11 Bridge, Restigouche County	1
00NB01BJ0006	Chaine de Rochers Stream near Campbellton Racetrack, Restigouche County	1
00NB01BJ0007	Christopher Brook at Hwy 2 Bridge at Tidehead, Restigouche County	1
00NB01BJ0010	Little River about 6.4 km SW of Bathurst (WSC Gauge), at Carrolls Farm, Gloucester County	46
00NB01BJ0011	Louison Creek at Hwy Bridge in River Louison, Restigouche County	1
00NB01BJ0014	Belledune River above Hwy 11 Bridge, Restigouche County	1

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BJ0022	Hendry Brook at Hwy 11 Bridge at Belledune, Gloucester County	1
00NB01BJ0023	Quitar Creek at Hwy 11 Bridge, Gloucester County	1
00NB01BJ0024	Fournier Brook at Hwy 11 Bridge, Pointe Verte, Gloucester County	1
00NB01BJ0025	Elmtree River at Hwy 11 Bridge, Petit Rocher Nord, Gloucester County	1
00NB01BJ0026	Little Elmtree River at Hwy 11 Bridge, Petit Rocher Nord, Gloucester County	1
00NB01BJ0027	Nigadoo River at Hwy Bridge at Nigadoo, Gloucester County	1
00NB01BJ0028	Tetagouche River, 500 m below Bridge on Tetagouche North Road (WSC Gauge), Gloucester County	46
00NB01BJ0029	Jacquet River about 3.2 km above mouth (WSC Gauge), Durham Centre, Restigouche County	53
00NB01BJ0030	Eel River at Headpond near pumping station intake, Restigouche County	39
00NB01BJ0041	Grants Brook at Hwy 11 Bridge, Gloucester County	1
00NB01BJ0042	Little River above Hwy Bridge about 200 m from Mouth, Gloucester County	1
00NB01BJ0050	Middle River from Road near Gravel Pit 500 m below Cherry Brook, Gloucester County	1
00NB01BJ0054	Restigouche River at Hwy Bridge at Matapedia, Restigouche County	35

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BJ0055	Matapedia River at Matapedia from Bridge, Bonaventure County	35
00NB01BJ0056	Restigouche River at Rafting Ground Brook (WSC Gauge)	47
00NB01BJ0057	Belledune (Noranda) Water Supply - Jacquet River at Pumping Station	2
00NB01BK0001	Nepisiguit River at Nepisiguit Falls	36
00NB01BK0020	Nepisiguit River 4 km below Fortymile Brook at Hwy 430 Bridge, Northumberland County	1
00NB01BK0026	Nepisiguit River at Hwy 360 Bridge, near NLU Mine B#6-13, Gloucester County	47
00NB01BK0052	Nepisiguit River at Hwy 11 (Bathurst Bypass) Bridge, Gloucester County	4
00NB01BL0001	Southwest Caraquet River at Bridge (WSC Gauge), Burnsville, Gloucester County	57
00NB01BL0002	Tracadie River at Murchy Bridge Crossing (WSC Gauge), Gloucester County	33
00NB01BL0003	Bass River in Gloucester County	30
00NB01BL0004	Tabusintac River at Hwy 8 Bridge, Jeanne Mance, Gloucester County	40
00NB01BL0007	Teagues Brook at Hwy 11 Bridge Janeville, Gloucester County	1
00NB01BL0009	Northwest Caraquet River at Hwy 11 Bridge, Gloucester County	1
00NB01BL0011	Pokemouche River at Hwy 11 Bridge, Pokemouche, Gloucester County	1
00NB01BL0014	Little Tracadie River from Hwy 11 Bridge, Tracadie, Gloucester County	1
00NB01BL0016	Pokeshaw River at Hwy 11 Bridge, Riorden, Gloucester County	1

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BL0018	Burnt Church River at Hwy 11 Bridge, New Jersey, Northumberland County	1
00NB01BL0019	Unnamed Stream at Hwy 11 Bridge, Miller Brook, Gloucester County	1
00NB01BL0020	Little Tracadie River at Road Bridge, Alderwood, Gloucester County	1
00NB01BL0021	Unnamed Stream at Hwy 11 Bridge, Cranberry Cape, Gloucester County	1
00NB01BL0022	Southwest Caraquet River from Bridge, 1.1 km north of Bertrand, Gloucester County	1
00NB01BL0023	Tracadie River (mouth) from Hwy 11 Bridge, Sheila, Gloucester County	1
00NB01BL0024	Pokemouche River at Bridge, 3.8 km South of Paquetville, Gloucester County	1
00NB01BL0032	Tabusintac River at Bridge, south side of Cain Point, Northumberland County	6
00NB01BL0034	Tracadie River 1 km below Frank Hyde Brook, Gloucester County	1
00NB01BM0001	Southwest Miramichi River at Bridge, Bloomfield Ridge, Northumberland County	68
00NB01BM0005	Taxis River at Hwy 625 Covered Bridge, Boiestown, Northumberland County	1
00NB01BM0006	Burntland Brook at Hwy 8 Bridge, Boiestown, Northumberland County	1
00NB01BN0001	Cains River at Confluence with Southwest Miramichi River at Bridge, Northumberland County	67
00NB01BN0003	Otter Brook above confluence with Cains River , Northumberland County	10

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BØ0001	Southwest Miramichi River at Bridge, (WSC Gauge), Blackville, Northumberland County	175
00NB01BØ0002	Renous River 300 m above confluence of McGraw Brook (WSC Gauge), Northumberland County	70
00NB01BØ0007	Barnaby River at Barnaby River, Northumberland County	27
00NB01BØ0012	Little Bartibog River at Russelville, Northumberland County	1
00NB01BØ0013	Renous River at Hwy 8 Bridge, Renous, Northumberland County	14
00NB01BØ0014	Northwest Millstream at Covered Bridge, West of Strathadam, Northumberland County	1
00NB01BØ0019	Bartibog River at Hwy 8 Bridge, Bartibog, Northumberland County	56
00NB01BØ0021	Bartibog River above confluence of Little Bartibog River, Russellville, Northumberland County	2
00NB01BP0001	Little Southwest Miramichi at Bridge, Lyttleton (WSC Gauge), Northumberland County	93
00NB01BQ0001	Northwest Miramichi River at Redbank-Sunny Corner Bridge, Northumberland County	80
00NB01BQ0004	South Tomogonops River below Tailings Pond at Hwy 430 Bridge, H-3, Northumberland County	12
00NB01BQ0006	South Tomogonops River at Mouth to Northwest Miramichi River, Northumberland County	12
00NB01BQ0008	Sevogle River at confluence with Northwest Miramichi River, Curvention, Northumberland County	43

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BQ0035	Northwest Miramichi River at Payne (Miner's) Bridge.	1
00NB01BQ0044	Northwest Miramichi River at Wayerton Bridge, H-21, Northumberland County	59
00NB01BQ0056	Northwest Miramichi River at Hwy 430 Bridge (Miner's Bridge), Northumberland County	23
00NB01BR0001	Kouchibouguac River at Vautour (WSC Gauge), Kent County	65
00NB01BR0006	Portage River at Hwy 117, Lower Sapin, Kent County	1
00NB01BR0008	Black River at Hwy 117 Covered Bridge at Claire Fontaine, Kent County	1
00NB01BR0011	Kouchibouguac River at Hwy 11 at Kouchibouguac, Kent County	1
00NB01BR0014	Bay du Vin River at Hwy 11 Bridge, Northumberland County	1
00NB01BR0015	Kouchibouguac River at Bretagneville, Kent County	1
00NB01BR0016	Aldouane River at Road Bridge, St. Charles, Kent County	1
00NB01BS0001	Coal Branch River at Beersville (WSC Gauge), Kent County	57
00NB01BS0003	Bass River at Hwy 116 Bridge about 700 m North of Bass River, Kent County	1
00NB01BS0004	Molus River at Hwy 116 Bridge 600 m North of Molus River, Kent County	1
00NB01BS0018	Buctouche River at Bridge in Coates Mills, Kent County	18
00NB01BS0019	Cocagne River at Hwy 525 Bridge, Notre Dame, Kent County	20

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BS0042	Shediac River 2.4 km West of Shediac Bridge, Westmorland County	1
00NB01BS0043	Richibucto River at Covered Bridge, Kent County	1
00NB01BS0044	Trout Brook 3 km East of Smiths Corner, Kent County	1
00NB01BS0046	Richibucto River at Hwy 116 Bridge, Smiths Corner, Kent County	19
00NB01BT0002	Scoudouc River near Rock Quarry and Train Bridge, Westmorland County	1
00NB01BT0003	Aboushagan River near Bourgeois Mills Bridge, Westmorland County	1
00NB01BT0004	Kinnear River West of Cormier Village, Westmorland County	1
00NB01BT0005	Kouchibouguac River East of Cormier Village, Westmorland County	1
00NB01BT0007	Gaspereau River at Hwy 16 Bridge, Port Elgin, Westmorland County	1
00NB01BT0008	Tantramar River at TCH Bridge, Sackville, Westmorland County	1
00NB01BT0009	Aulac River at TCH Bridge near Aulac, Westmorland County	1
00NB01BT0010	Morice Brook at Morice Lake Outflow, Middle Sackville, Westmorland County	1
00NB01BT0011	Frosty Hollow Brook past junction with Route 6, Westmorland County	1
00NB01BU0001	Palmers Creek near Dorchester (WSC Gauge), Westmorland County	53
00NB01BU0003	Petitcodiac River at TCH Crossing (WSC Gauge) near Petitcodiac, Westmorland County	20

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BU0004	Petitcodiac River at Control Gates of Moncton-Riverview Causeway, Westmorland County	68
00NB01BU0005	Petitcodiac River at Hwy 112 Bridge, Salisbury, Westmorland County	34
00NB01BU0006	Turtle Creek at Inlet to Turtle Creek Reservoir (WSC Gauge), Westmorland County	105
00NB01BU0008	Memramcook River at Calhoun, Westmorland County	32
00NB01BU0015	Petitcodiac River 305 m above mouth of Michaels Creek, Westmorland County	1
00NB01BU0031	Petitcodiac River from Hwy 2 Bridge, North of Petitcodiac (WSC Gauge), Westmorland County	70
00NB01BU0051	Turtle Creek at Reservoir outlet of Pumphouse, Albert County	11
00NB01BU0053	Halls Creek at Main Street in Moncton, Westmorland County	1
00NB01BU0054	Jonathan Creek at Pacific Avenue in Moncton, Westmorland County	1
00NB01BU0055	Weldon Creek at Hwy 114 Bridge Weldon, Albert County	1
00NB01BV0001	Point Wolf River at Covered Bridge, Albert County	1
00NB01BV0002	Salmon (Alma) River at Bridge, Alma, Albert County	1
00NB01BV0003	Big Salmon River at Counting Fence 12.7 km NE of St. Martins (WSC Gauge), Saint John County	36
00NB01BV0009	Demoiselle Creek at Hwy 114 Bridge SW of Lower Cape, Albert County	1
00NB01BV0010	Sawmill Creek at Hwy 114 Covered Bridge, Hopewell Hill, Albert County	1

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
00NB01BV0011	Crookes Creek at Hwy 114 Covered Bridge, Albert, Albert County	1
00NB01BV0015	Point Wolf River mouth (WSC Gauge), Fundy National Park, Albert County	112
00NB01BV0016	Upper Salmon River at Confluence with Kinnie Brook (WSC Gauge), Albert County	40
00NB01BV0017	Broad River at Falls 1.82 km above Junction with Upper Salmon River, Albert County	17
00NB01BV0018	Fortyfive River at Covered Bridge, Fundy National Park, Albert County	15
00NB01BV0021	Humphreys Brook at Lewisville on Hwy 11, Westmorland County	1
01NB01AD0004 (51NB01AD0004)	Glasier Lake, 200 m above outlet of St. Francis River	3 (3)
01NB01AD0005	Madawaska River Headpond 50 m from Fraser Pumping Station #2	6
01NB01AD0006 (51NB01AD0006) (91NB01AD0006)	Madawaska River Headpond, 1.2 km below TCH Bridge, Madawaska County	3 (10)
01NB01AD0040	Clair Water Supply - Reservoir below Thompson Lake	2
01NB01AF0005 (51NB01AF0005) (91NB01AF0005)	Saint John River above Grand Falls Dam, Madawaska County	293 (7)
01NB01AF0006 (51NB01AF0006)	Saint John River at Grand Falls Headpont 500 m above dam	6 (6)
01NB01AF0007 (51NB01AF0007) (91NB01AF0007)	Green River Reservoir at Second Falls North of Fraser Nursery Pumping Station	3 (10)
01NB01AG0001	Aroostook River at Forebay Bridge, Tinker Dam, Victoria County	141

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
01NB01AG0002 (51NB01AG0002) (91NB01AG0002)	Aroostook River at Canada-USA Border (Centre of River), Victoria County	12 (18)
01NB01AH0005	Tobique River 150 m above dam at Narrows, Victoria County	278
01NB01AH0008 (51NB01AH0008)	Lake Nictau at centre of Westerly Basin, Restigouche County	3 (3)
01NB01AH0009 (51NB01AH0009) (91NB01AH0009)	Tobique River Headpond, 1.8 km above confluence of Big Flat Brook, Victoria County	6 (18)
01NB01AH0010 (51NB01AH0010) (91NB01AH0010)	Sisson Branch Reservoir in Centre 400 m above dam	3 (5)
01NB01AJ0003 (51NB01AJ0003) (91NB01AJ0003)	Saint John River at Beechwood Headpond, 300 m above dam (at power line crossing), Carleton County	249 (7)
01NB01AJ0004 (51NB01AJ0004)	Saint John River at Beechwood Headpond, 600 m above dam Carleton County	6 (6)
01NB01Ak0009 (51NB01AK0009) (91NB01AK0009)	Saint John River at New Nackawic Bridge, Pokiok, York County	327 (10)
01NB01AK0011	Saint John River 150 m above control gates, Mactaquac Headpond, York County	331
01NB01AK0012 (51NB01AK0012)	Saint John River at Mactaquac Headpond, 100 m above Headland	9 (9)
01NB01AK0019 (51NB01AK0019)	Saint John River at Mactaquac Headpond, 100 m from Headlands of Walinaik Cove Marina across from dam.	3 (3)
01NB01AØ0019 (51NB01AØ0019)	Grand Lake about 700 m from Jemseg River at Black Channel Marker	3 (3)
01NB01AP0008	Spruce Lake outlet at pumphouse SW of Saint John, Saint John County	34
01NB01AP0010	Washademoak Lake at Hwy 695 Bridge, Cambridge-Narrows, Queens County	35

TABLE 3 Cont'd

NAQUA DAT #	DESCRIPTION	APPROX. # OF SAMPLES
01NB01AQ0022	East (Branch) Musquash River at Penstock intake at east reservoir, Saint John County	59
01NB01AQ0023	West Musquash Lake above dam, Saint John County	59
01NB01AQ0028 (51NB01AQ0028)	Magaguadavic Lake 1 km east of Hills Head in Center of Basin	3 (3)
01NB01AR0016 (51NB01AR0016)	Spednic Lake outlet at center opposite confluence of Casey Brook	3 (3)
01NB01BJ0015	Bathurst Water Supply - Reservoir at Treatment Plant near Intake	2
01NB01BJ0016	Campbellton Water Supply - Reservoir at Intake	2
01NB01BJ0017	Dalhousie Water Supply - Charlo River Reservoir at Dam	2
01NB01BK0009	Nepisiguit River at Power Dam Headpond, Nepisiguit Falls, Gloucester County	18
01NB01BK0010 (51NB01BK0010)	Nepisiguit River at Nepisiguit Falls Headpond, 300 m above dam	3 (3)
01NB01BU0001 (51NB01BU0001)	Petitcodiac Lake at Center 800 m above Moncton Causeway (under Transmission lines)	3 (3)
01NB01BU0002	Moncton Water Supply - Turtle Creek Reservoir at Intake	2
01NB01BV0017	Latimer Lake at pumphouse, Saint John County	38
02NB01AP0008	Belleisle Bay in middle of bay at Ferry,Long Point, Kings County	8
02NB01AP0009	Saint John River estuary in middle of estuary at Ferry, Evandale, Kings County	55
02NB01AP0010	Saint John River in middle of estuary at Ferry, Westfield, Kings County	56
02NB01AP0012 (52NB01AP90012)	Saint John Harbour, 50 m N of pier 9, Saint John County	44 (3)

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
02NB01AP0013 (52NB01AP0013)	Saint John River, about 1.3 km below Ferry at Center Westfield	3 (3)
02NB01AP0014 (52NB01AP0014)	Kennebecasis Bay near Gondola Point between Wheatons Pt and Oliver Pt, 150 m. from Wheatons Point	3 (3)
02NB01BK0001 (52NB01BK0001)	Bathurst Harbour near mouth of Nepisiguit River, Gloucester County	3 (3)
02NB01BØ0001 (52NB01BØ0001)	Miramichi River at Chatham, 750 m below Hwy 11 Bridge, Northumberland County	3 (3)
03NB01AP0001 (53NB01AP0001)	Saint John River (Courtenay Bay) 1250 m WSW of confluence of Little River, Saint John County	3 (3)
03NB01BJ0001 (53NB01BJ0001)	Restigouche River (Dalhousie Harbour) 850 m NW of Dalhousie Island Lighthouse, Restigouche County	3 (3)
03NB01BL0001 (53NB01BL0001)	Bathurst Harbour, 700 m NNW of Daly point, Gloucester County	3 (3)
03NB01BØ0001 (53NB01BØ0001)	Miramichi River near Loggieville, 1500 m W of St. Andrew Point, Northumberland County	3 (3)
33NB01BR0001	CFB St. Margarets Fallout Sampler - Bulk No. 1	4
33NB01BR0002	CFB St. Margarets Fallout Sampler - Bulk No. 2	4
33NB01BR0003	CFB St. Margarets Fallout Sampler - Event No. 1	4
33NB01BR0004	CFB St. Margarets Fallout Sampler - Event No. 2	4
33NB01BV0001	Fundy National Park Fallout Sampler - Bulk No. 1	4

TABLE 3 Cont'd

NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
33NB01BV0001	Fundy National Park Fallout Sampler - Bulk No. 2	4
33NB01BV0001	Fundy National Park Fallout Sampler - Event No. 1	4
33NB01BV0001	Fundy National Park Fallout Sampler - Event No. 2	4
52NB01AR0001	St. Croix River, 150 m above bridge, St. Stephen, Charlotte County	3
52NB01AR0002	St. Croix River, 200 m below confluence of Dennis Stream, Charlotte County	3
52NB01BK0002	Nepisiguit River 200 m below Old Hwy 11 Bridge, Bathurst, Gloucester County	3

APPENDIX I

FEDERAL LEGISLATIVE ACTS RELATED TO WATER

- British North America Act
- Boundary Waters Treaty Act (1909)
- International River Improvement Act (1955)
- Canada Water Act (1970)
- Northern Inland Waters Act (1972)
- Artic Waters Pollution Prevention Act (1972)
- Fisheries Act (amended in 1977)
- Canada Shipping Act
- Navigable Waters Protection Act
- Department of Environment Act
- Environmental Contaminants Act (1975)
- National Parks (Canada) Act
- National Harbours Act
- Migratory Birds Convention Act (1916)
- Government Organization Act (1979)

APPENDIX II

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: I.H.D. National Water Quality Monitoring

SUBMITTER I.D.: 0001

PERIOD: August 1966 - April 1974

OBJECTIVES: To establish and maintain a water quality and pollution evaluation network in New Brunswick and to obtain a province-wide baseline inventory of surface water quality

FIELD SAMPLING: Lay collectors

PARAMETERS ANALYZED: Physical parameter, major ions, nutrients, metals

STATIONS SAMPLED:

STATION[a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0001	Saint John River at Clair	161
2	00NB01AD0012	Madawaska River at St. Jacques	23
3	00NB01AF0001	Little River	37
4	00NB01AF0003	Salmon River	33
5	00NB01AG0002	Aroostook River at Four Falls	40
6	00NB01AG0003	Limestone River at Four Falls	92
7	00NB01AH0002	Tobique River at Riley Brook	43
8	01NB01AJ0003	Saint John River at Beechwood	86
9	00NB01AJ0006	Presquile River at Tracey Mills	173
10	00NB01AJ0007	Meduxnekeag River at Woodstock	63
11	00NB01AK0001	Saint John River at McKinley Ferry	65

APPENDIX II Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
12	00NB01AK0017	Shogomoe Stream	38
13	00NB01AL0003	Nashwaak River at Durham Bridge	35
14	00NB01AM0001	North Branch Oromocto River at Tracy	56
15	00NB01AN0001	Salmon River at Gaspereau Forks	25
16	00NB01AØ0001	Little River near Ripples	34
17	00NB01AØ0002	Newcastle Creek near Minto	29
18	00NB01AØ0003	Jemseg River at Jemseg	33
19	00NB01AP0001	Canaan River at East Canaan	60
20	00NB01AP0002	Kennebecasis River at Apohaqui	29
21	00NB01AP0007	Little River at Silver Falls	37
22	00NB01AQ0001	Lepreau River at Lepreau	55
23	00NB01AQ0002	Magaguadavic River at Second Falls	57
24	01NB01AQ0023	East Branch Musquash River	36
25	01NB01AQ0022	West Musquash Lake	36
26	00NB01AR0001	St. Croix River at Milltown	108
27	00NB01AR0002	St. Croix River at St. Croix	60
28	00NB01AR0007	Bocabec River	37
29	00NB01AR0008	Chamcook River	31
30	00NB01AR0009	Dennis Stream at St. Stephen	37
31	00NB01AR0010	Digdeguash River	35
32	00NB01BC0001	Restigouche River near Kedgwick	57
33	00NB01BE0001	Upsalquitch River at Upsalquitch Station	88

APPENDIX II Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
34	00NB01BJ0010	Little River at Carrolls Farm	28
35	00NB01BJ0028	Tetagouche River near Tetagouche	29
36	00NB01BJ0029	Jacket River at Durham Centre	37
37	00NB01BJ0030	Eel River	38
38	00NB01BK0001	Nepisiguit River at Nepisiguit Falls	36
39	00NB01BL0001	Southwest Caraquet River at Burnsville	53
40	00NB01BL0002	Tracadie River at Murchy	30
41	00NB01BL0003	Bass River at Bass River	29
42	00NB01BL0004	Tabusintac River at Jeanne-Mance	39
43	00NB01BM0001	Southwest Miramichi River at Bloomfield Ridge	55
44	00NB01BN0001	Cains River at mouth	40
45	00NB01BØ0001	Southwest Miramichi River at Blackville	113
46	00NB01BØ0002	Renous River at McGraw Brook	53
47	00NB01BØ0007	Barnaby River at Barnaby River	26
48	00NB01BØ0019	Bartibog River at Bartibog	37
49	00NB01BP0001	Little Southwest Miramichi River at Lyttleton	76
50	00NB01BQ0001	Northwest Miramichi River near Red Bank	62
51	00NB01BQ0008	Sevogle River at Convention	34
52	00NB01BR0001	Kouchibouguac River at Vautour	52
53	00NB01BS0001	Coal Branch River at Beersville	56
54	00NB01BU0001	Palmers Creek near Dorchester	53
55	00NB01BU0004	Petitcodiac River at Moncton causeway	50

APPENDIX II Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
56	00NB01BU0005	Petitcodiac River at Salisbury	34
57	00NB01BU0006	Turtle Creek at Reservoir inlet	60
58	00NB01BU0008	Memramcook River near Calhoun	24
59	00NB01BU0031	Petitcodiac River near Petitcodiac	39
60	00NB01BU0051	Turtle Creek Reservoir at outlet in pumphouse	11
61	00NB01BV0002	Salmon River at Alma	1
62	00NB01BV0003	Big Salmon River near St. Martin	36
63	00NB01BV0015	Point Wolfe River in Fundy National Park	18
64	00NB01BV0016	Upper Salmon River in Fundy National Park	17
65	00NB01BV0017	Broad River at falls	17
66	00NB01BV0018	Forty-Five River in Fundy National Park	15
67	00NB01AP0008	Spruce Lake at outlet	32
68	00NB01BV0017	Latimer Lake at pumphouse	36

a = For detailed location of stations, refer to Map #1.

APPENDIX III

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: I.H.D. Research Basin Study

SUBMITTER I.D.: 0021

PERIOD: November 1970 - May 1974

OBJECTIVE: To gather data in order to better understand the relationships of the interconnected parameters of the hydrological cycle and their effects on the water balance of basins in a maritime climate.

FIELD SAMPLING: Lay Collectors

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, metals

STATIONS SAMPLED:

STATION[a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AK0002	North Nashwaaksis Stream, Royal Road	40
2	00NB01AK0003	North Nashwaaksis Stream, Sandwith Farm	39

a = For detailed location of stations, refer to Map #2.

APPENDIX IV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Saint John River Basin Study (Task 10A)

SUBMITTER I.D.: 0069

PERIOD: June 1971 - December 1973

OBJECTIVES: To collect, analyze and store sufficient water quality data to allow for the development of a multi-use basin plan.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, metals, nutrients, major ions and pesticides (some samples)

STATIONS SAMPLED:

STATION[a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB1AD0001	Saint John River at Clair	46
2	00NB01AD0012	Madawaska River at St. Jacques	8
3	00NB01AD0013	St. Francis River near mouth	7
4	00NB01AF0002	Saint John River at St. Leonard	45
5	00NB01AF0005	Saint John River near Limestone	38
6	00NB01AJ0002	Saint John River at Perth-Andover	46
7	00NB01AJ0009	Saint John River near south of Florenceville	45
8	00NB01AJ0011	Saint John River above Florenceville	38
9	00NB01AJ0012	Big Presque Isle Stream at International Border	45

APPENDIX IV Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
10	00NB01AJ0013	Saint John River at Hartland	38
11	00NB01AJ0014	Saint John River at Woodstock	46
12	00NB01AJ0015	Meduxnekeag River at Bellelville	45
13	00NB01AK0001	Saint John River at McKinley Ferry	35
14	00NB01AØ0003	Jemseg River at Jemseg	8
15	00NB01AØ0004	Saint John River at Maugerville	42
16	00NB01AØ0005	Saint John River at Lower Gagetown	40
17	00NB01AP0002	Kennebecasis River at Apohaqui	42
18	02NB01AP0012	Saint John Harbour at N.H.B. pier	41
19	00NB01AP0030	Kennebecasis River near Sussex	8
20	01NB01AF0005	Saint John River at Grand Falls dam	115
21	01NB01AG0001	Aroostook River at Tinker Dam	46
22	01NB01AH0005	Tobique River at Narrows	211
23	01NB01AJ0003	Saint John River at Beechwood	193
24	01NB01AK0009	Saint John River at Pokiok	238
25	01NB01AK0011	Saint John River at Mactaquac Headpond	269
26	01NB01AP0010	Washademoak Lake at Cambridge-Narrows	8
27	02NB01AP0008	Belleisle Bay near Long Point	8
28	02NB01AP0009	Saint John River estuary near Evandale	38
29	02NB01AP0010	Saint John River estuary near Westfield	40

a = For detailed location of stations, refer to Map #3.

APPENDIX V

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: New Brunswick Surface Water Quality Survey

SUBMITTER I. D.: 0127

PERIOD: 1972

OBJECTIVE: To determine levels of mercury, cadmium and selected organochlorine pesticides in New Brunswick surface waters.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Mercury, Cadmium, p,p-DDT, o,p-DDT, p,p-TDE, p,p-DDE, p,p-Methoxychlor, Heptachlor, Heptachlor Epoxide, Endosulfan, (cis) Chlordane (Trans) Chlordane, BHC (Lindane), BHC, Aldrin, Endrin, Dieldrin, 2,4-D, 2,4,5-T

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0001	Saint John River at Clair	1
2	00NB01AD0002	Madawaska River at Edmundston	1
3	00NB01AD0003	Baker Brook at Baker Brook	1
4	00NB01AD0004	Caron Brook at Caron Brook	1
5	00NB01AD0009	Little River near Pelletier Mills	1
6	00NB01AD0010	Foley Brook near Connors	1
7	00NB01AD0011	Grew Brook near Connors	1
8	00NB01AF0001	Little River at mouth near Grand Falls	1
9	00NB01AF0008	Stream near Morell	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX # OF SAMPLES
10	00NB01AF0009	Rapide de Femme Creek near Grand Falls	1
11	00NB01AF0010	Poitras Brook at Powers Creek	1
12	00NB01AF0011	Powers Brook at Powers Creek	1
13	00NB01AF0012	Mill Stream at Bellefleur	1
14	00NB01AF0013	Grand River near St. Leonard	1
15	00NB01AF0014	Seigas River at Seigas	1
16	00NB01AF0015	Quisibis River	1
17	00NB01AF0016	Green River near Green River	1
18	00NB01AF0017	Stream north of Green River near St. Basile	1
19	00NB01AF0018	Laudie Brook near Iroquois	1
20	00NB01AF0019	Iroquois River at Iroquois	1
21	00NB01AG0003	Limestone River at Four Falls	1
22	00NB01AG0008	Aroostook River above Limestone River	1
23	00NB01AK0001	Saint John River at McKinley Ferry	1
24	00NB01AK0002	North Nashwaaksis Stream at Royal Road	1
25	00NB01AK0003	North Nashwaaksis Stream at Sandwith Farm	1
26	00NB01AL0003	Nashwaak River at Durham bridge	1
27	00NB01AM0001	North Branch Oromocto River at Tracey	1
28	00NB01AN0001	Salmon River at Gaspereau Forks	1
29	00NB01AØ0001	Little River near Ripples	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
30	00NB01AØ0002	Newcastle Creek near Minto	1
31	00NB01AØ0003	Jemseg River at Jemseg	1
32	00NB01AØ0015	Cumberland Bay Stream at Cumberland Bay	1
33	00NB01AØ0016	Coal Creek near Dufferin	1
34	00NB01AP0001	Canaan River at East Canaan	1
35	00NB01AP0008	Kennebecasis River near Crockets Corner	1
36	00NB01AP0019	Belleisle Creek at Springfield	1
37	00NB01AP0020	Canaan River near Brookvale	1
38	00NB01AP0021	Otnabog River near Queenstown	1
39	00NB01BC0001	Restigouche River near Kedgwick	1
40	00NB01BE0001	Upsalquitch River at Upsalquitch Station	1
41	00NB01BJ0001	Nash Creek at Nash Creek	1
42	00NB01BJ0003	New Mills River at New Mills	1
43	00NB01BJ0004	South Charlo River at River Charlo	1
44	00NB01BJ0005	Charlo River at bridge	1
45	00NB01BJ0006	Chaine de rochers Stream near Campbellton	1
46	00NB01BJ0007	Christopher Brook at Tidehead	1
47	00NB01BJ0011	Louison Creek at River Louison	1
48	00NB01BJ0014	Belledune River near Bridge	1
49	00NB01BJ0022	Hendry Brook at Belledune	1
50	00NB01BJ0023	Quitard Creek at Bridge	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX # OF SAMPLES
51	00NB01BJ0024	Fournier Brook at Pointe Verte	1
52	00NB01BJ0025	Elmtree River at Petit Rocher Nord	1
53	00NB01BJ0026	Little Elmtree River at Petit Rocher Nord	1
54	00NB01BJ0027	Nigadoo River at Nigadoo	1
55	00NB01BJ0028	Tetagouche River near Tetagouche	1
56	00NB01BJ0029	Jacquet River near Durham Centre	1
57	00NB01BJ0030	Eel River at headpond	1
58	00NB01BJ0041	Grants Brook at bridge	1
59	00NB01BJ0042	Little River near mouth	1
60	00NB01BJ0050	Middle River near Cherry Brook	1
61	00NB01BK0020	Nepisiguit River near Fortymile Brook	1
62	00NB01BL0001	Southwest Caraquet River at Burnsville	1
63	00NB01BL0002	Tracadie River at Murchy	1
64	00NB01BL0003	Bass River	1
65	00NB01BL0004	Tabusintac River at Jeanne Mance	1
66	00NB01BL0007	Teagues Brook at Janeville	1
67	00NB01BL0009	Northwest Caraquet River at Bridge	1
68	00NB01BL0011	Pokemouche River at Pokemouche	1
69	00NB01BL0014	Little Tracadie River at Tracadie	1
70	00NB01BL0016	Pokeshaw River at Riorden	1
71	00NB01BL0018	Burnt Church River at New Jersey	1
72	00NB01BL0019	Unnamed Stream at Miller Brook	1
73	00NB01BL0020	Little Tracadie River at Alderwood	1
74	00NB01BL0021	Unnamed Stream at Cranberry Cape	1
75	00NB01BL0022	Southwest Caraquet River near Bertrand	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
76	00NB01BL0023	Tracadie River near Sheila	1
77	00NB01BL0024	Pokemouche River near Paquetville	1
78	00NB01BM0001	Southwest Miramichi River at Bloomfield Ridge	1
79	00NB01BM0005	Taxis River at Boiestown	1
80	00NB01BM0006	Burntland Brook at Boiestown	1
81	00Nb01BN0001	Cains River at confluence with Southwest Miramichi River	1
82	00NB01BØ0001	Southwest Miramichi River at Blackville	1
83	00NB01BØ0002	Renous River near McGraw Brook	1
84	00NB01BØ0007	Barnaby River at Barnaby River	1
85	00NB01BØ0012	Little Bartibog River at Russellville	1
86	00NB01BØ0013	Renous River at Renous	1
87	00NB01BØ0014	Northwest Millstream near Strathadam	1
88	00NB01BØ0019	Bartibog River at Bartibog	1
89	00NB01BP0001	Little Southwest Miramichi River at Lyttleton	1
90	00NB01BQ0001	Northwest Miramichi River at Red Bank	1
91	00NB01BQ0008	Sevogle river at Curventon	1
92	00NB01BQ0035	Northwest Miramichi River at Payne (Miner's) Bridge	1
93	00NB01BR0001	Kouchibouguac River at Vautour	1
94	00NB01BR0006	Portage River at Lower Sapin	1
95	00NB01BR0008	Black River at Claire Fontaine	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
96	00NB01BR0011	Kouchibouguac River at Kouchibouguac	1
97	00NB01BR0014	Bay Du Vin River at Bridge	1
98	00NB01BR0015	Kouchibouguac River at Bretagneville	1
99	00NB01BR0016	Aldoune River at St. Charles	1
100	00NB01BS0001	Coal Branch River at Beersville	1
101	00NB01BS0003	Bass River near Bass River	1
102	00NB01BS0004	Molus River near Molus River	1
103	00NB01BS0018	Buctouche River at Coates Mills	1
104	00NB01BS0019	Cocagne River at Notre Dame	1
105	00NB01BS0042	Shediac River near Shediac Bridge	1
106	00NB01BS0043	Richibucto River at bridge	1
107	00NB01BS0044	Trout Brook near Smiths Corner	1
108	00NB01BT0002	Scoudouc River near train bridge	1
109	00NB01BT0003	Aboujagane River near Bourgeois Mills	1
110	00NB01BT0004	Kinnear River near Cormier Village	1
111	00NB01BT0005	Kouchibouguac River near Cormier Village	1
112	00NB01BT0007	Gaspereau River at Port Elgin	1
113	00NB01BT0008	Tantramar River at Sackville	1
114	00NB01BT0009	Aulac River near Aulac	1
115	00NB01BT0010	Morice Brook at Middle Sackville	1
116	00NB01BT0011	Frosty Hollow Brook near Route 6	1

APPENDIX V Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
117	00NB01BU0015	Petitcodiac River above Michaels Creek	1
118	00NB01BU0053	Halls Creek at Moncton	1
119	00NB01BU0054	Jonathan Creek at Moncton	1
120	00NB01BU0055	Weldon Creek at Weldon	1
121	00NB01BV0001	Point Wolf River at bridge	1
122	00NB01BV0009	Demoiselle Creek near Lower Cape	1
123	00NB01BV0010	Sawmill Creek at Hopewell Hill	1
124	00NB01BV0011	Crooked Creek at Albert	1
125	00NB01BV0021	Humphreys Brook at Lewisville	1
126	01NB01BK0009	Nepisiguit River at Nepisiguit Falls	1

a = For detailed location of stations, refer to Map #4.

APPENDIX VI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: In-House Conductivity Study

SUBMITTER I.D.: 0080

PERIOD: July 1973 - October 1973

OBJECTIVE: To measure in-stream specific conductivity, of two different gauged streams in the Moncton area, in order to determine if current sampling frequencies at these stations were adequate.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Specific conductivity, major ions and metals (some samples)

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01BU0006	Turtle Creek at inlet to reservoir	20
2	00NB01BU0003	Petitcodiac River near Petitcodiac	20
3	00NB01AP0031	Kennebecasis River near Crockets Corner	20
4	00NB01AP0032	Kennebecasis River near Sussex	20

a = For detailed location of stations, refer to Map #5.

APPENDIX VII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE:	WQB National Water Quality Monitoring
SUBMITTER I. D.:	0003
PERIOD:	April 1974 to July 1978
OBJECTIVES:	To collect, analyze and store background surface water quality data for later interpretation
FIELD SAMPLING:	Water Quality Branch staff
PARAMETERS ANALYZED:	Physical parameters, major ions, nutrients, and metals

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0001	Saint John River at Clair	28
2	00NB01AD0012	Madawaska River at St. Jacques	2
3	00NB01AD0013	St. Francis River near mouth	22
4	00NB01AD0015	Madawaska River above St. Jacques	26
5	00NB01AD0016	Madawaska River at Edmundston	26
6	00NB01AF0001	Little River at Grand Falls	2
7	00NB01AF0002	Saint John River at St. Leonard	27
8	00NB01AF0003	Salmon River at Hwy 125	2
9	00NB01AF0021	Green River near mouth	27
10	00NB01AG0003	Limestone River at Four Falls	25

APPENDIX VII Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
11	00NB01AH0002	Tobique River at Riley Brook	22
12	00NB01AJ0006	Presquile River at Tracey Mills	13
13	00NB01AJ0014	Saint John River at Woodstock	25
14	00NB01AJ0029	Meduxnekeag River at Belleville	26
15	00NB01AK0002	North Nashwaaksis Stream at Royal Road	28
16	00NB01AK0003	North Nashwaaksis Stream at Sandwith Farm	28
17	00NB01AL0006	Nashwaak River at Nashwaak Bridge	26
18	00NB01AL0007	Nashwaak River at Barkers Point	22
19	00NB01AM0003	Oromocto River at Oromocto	25
20	00NB01AN0001	Salmon River at Gasperaux Forks	21
21	00NB01AN0010	Salmon River at O'Leary Ferry Crossing	5
22	00NB01AØ0003	Jemseg River at Jemseg	31
23	00NB01AØ0004	Saint John River at Maugerville	22
24	00NB01AØ0005	Saint John River at Lower Gagetown	19
25	00NB01AP0001	Canaan River at East Canaan	17
26	00NB01AP0002	Kennebecasis River at Apohaqui	22
27	00NB01AP0021	Otnabog River near Queenstown	20
28	00NB01AP0033	Nerepis River at Nerepis	22
29	00NB01AP0034	Kennebecasis River at Hampton	21
30	00NB01AP0030	Kennebecasis River near Sussex	21
31	00NB01AQ0001	Lepreau River at Lepreau	22
32	00NB01AQ0002	Magaguadavic River at Second Falls	22
33	00NB01AQ0031	Magaguadavic River at Brockway	17

APPENDIX VII Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
34	00NB01AR0001	St. Croix River at Milltown	23
35	00NB01AR0002	St. Croix River at St. Croix	20
36	00NB01AR0011	Grand Lake outlet at Forest City	18
37	00NB01BC0001	Restigouche River at Kedgwick River	22
38	00NB01BE0001	Upsalquitch River at Upsalquitch Station	20
39	00NB01BJ0010	Little River at Caroll's Farm	18
40	00NB01BJ0028	Tetagouche River near Tetagouche	16
41	00NB01BJ0029	Jacquet River near Durham Centre	15
42	00NB01BK0052	Nepisiguit River near Bathurst	4
43	00NB01BL0001	Southwest Caraquet River at Burnsville	3
44	00NB01BL0002	Tracadie River at Murchy	2
45	00NB01BL0032	Tabusintac River near Cains Point	6
46	00NB01BL0034	Tracadie River below Frank Hyde Brook	1
47	00NB01BM0001	Southwest Miramichi River at Bloomfield Ridge	12
48	00NB01BN0001	Cains River at confluence of Southwest Miramichi River	16
49	00NB01BØ0001	Southwest Miramichi River at Blackville	14
50	00NB01BØ0002	Renous River above confluence of McGraw Brook	16
51	00NB01BØ0013	Renous River at Renous	13
52	00NB01BØ0019	Bartibog River at Bartibog	18
53	00NB01BØ0021	Bartibog River at Russellville	2
54	00NB01BP0001	Little Southwest Miramichi River at Lyttleton	16
55	00NB01BQ0001	Northwest Miramichi River at Red Bank	17

APPENDIX VII Con'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
56	00NB01BQ0008	Sevogle River at Curventon	8
57	00NB01BQ0056	Northwest Miramichi River at Miners Bridge	11
58	00NB01BR0011	Kouchibouguac River at Kouchibouguac	14
59	00NB01BS0018	Buctouche River at Coates Mills	17
60	00NB01BS0019	Cocagne River at Notre Dame	19
61	00NB01BS0046	Richibucto River at Smith's Corner	19
62	00NB01BU0004	Petitcodiac River at Moncton-Riverview Causeway	18
63	00NB01BU0006	Turtle Creek at Turtle Creek Reservoir (WSC Gauge)	25
64	00NB01BV0015	Point Wolfe River in Fundy National Park	24
65	00NB01BV0016	Upper Salmon River at Kinnie Brook	23
66	00NB01AF0005	Saint John River above Grand Falls Dam	50
67	01NB01AG0001	Aroostook River at Tinker Dam	29
68	01NB01AH0005	Tobique River at Narrows	67
69	01NB01AJ0003	Saint John River at Beechwood dam	50
70	01NB01AK0009	Saint John River at Pokiok	83
71	01NB01AK0011	Saint John River at Mactaquac Headpond	62
72	01NB01AP0010	Washademoak Lake at Cambridge-Narrows	27
73	01NB01AQ0022	East (Branch) Musquash River at East Reservoir	23
74	01NB01AQ0023	West Musquash Lake above dam	23

APPENDIX VII Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
75	01NB01BK0009	Nepisiguit River at Nepisiguit Falls	17
76	02NB01AP0009	Saint John River Estuary near Evandale	17
77	02NB01AP0010	Saint John River Estuary near Westfield	16

a = For detailed location of stations, refer to Map #6.

APPENDIX VIII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: AWQM Laboratory Program

SUBMITTER I. D.: 0221

PERIOD: June 1975 to November 1976

OBJECTIVE: To determine the correlation between parameter levels measured by the Automatic Water Quality Monitors in the Saint John River Basin and those measured on grab samples taken from the AWQM sample chambers

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, nutrients and major ions

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AF0022	Saint John River at Grand Falls Headpond	74
2	00NB01AG0009	Aroostook River at Tinker Headpond	99
3	00NB01AJ0012	Big Presquile Isle Stream at International Border	96
4	00NB01AJ0015	Meduxnekeag River at Belleville	190
5	00NB01AJ0030	Saint John River at Beechwood Headpond	35
6	00NB01AK0031	Saint John River at Mactaquac Forebay	3
7	00NB01AP0002	Kennebecasis River at Apohaqui	63

a = For detailed location of stations, refer to Map #7.

APPENDIX IX

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Environmental Monitoring of Forest Insect Control Operations

SUBMITTER I. D.: 0210, 0207 and 0208

PERIOD: May 1976 - July 1980

OBJECTIVES: A variety of projects were carried out over the years, and although varying in specific objectives, the overall aim has been to investigate the pathways, persistence and fate of pesticides applied to New Brunswick forests for the control of the Spruce Budworm, effectiveness of regulatory measures controlling the uses of compounds governed by the Pest Control Products Act.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Fenithrothion, Aminocarb, Carbaryl, FentitroOxon Aminofenitrothion, Nitrocresol, (some samples), DDT (soil samples)

STATIONS SAMPLED:

STATION [a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	-	Big Hole Brook at Acadie logging road bridge, approx. 6.5 km N.W. of Doaktown	18
2	-	Swamp Pond near Big Hole brook, approx. 8 km NW of Doaktown	18
3	-	Forest soil plot near Big Hole Brook, approx. 8 km N.W. of Doaktown	18

APPENDIX IX Cont'd

STATION	NAQUADAT	LOCATION	APPROX. # OF SAMPLES
4	-	Forest soil plot near Burnt Land Brook. approximately 3 km SE of Boiestown	18
5	00NB01BU0008	Memramcook River at Calhoun	8
6	-	Ground truthing grid (XAD-2 resin in petri dishes) near ains River at Otter Brook, approx. 12 km S.W. of Blackville	15
7	-	Ground truthing grid (XAD-2 resin in petri dishes) near Upsalquitch River at Berry Brook, approx. 25 km SW of Campbellton	15
8	00NB01BN0001	Cains River at confluence with Southwest Miramichi River	10
9	00NB01BN0003	Otter Brook above confluence with Cains River	10
10	00NB01BE0008	Upsalquitch River above confluence with Berry Brook	10
11	00NB01BE0009	Berry Brook below confluence with Little Berry Brook	10
12	-	Stagnant pond approx. 8 km due south of the confluence of Cains and Southwest Miramichi Rivers	5
13	-	XAD-2 rainwater collector - Gagetown	5
14	-	XAD-2 rainwater collector - Sussex	5
15	-	XAD-2 rainwater collector - Moncton	5
16	-	XAD-2 rainwater collector - Doaktey	5

APPENDIX IX Cont'd

STATION	NAQUADAT	LOCATION	APPROX. # OF SAMPLES
17	-	XAD-2 rainwater collector - Doaktown	5
18	-	XAD-2 rainwater collector - Harcourt	5
19	-	XAD-2 rainwater collector - Beresford	4
20	-	XAD-2 rainwater collector - Lameque	5
21	-	XAD-2 rainwater collector - Kouchibouguac	4
22	-	XAD-2 rainwater collector - Melrose	6
23	-	XAD-2 rainwater collector - Newcastle	5
24	-	XAD-2 rainwater collector - Sevogle	6
25	33NB01BR0001	CFB St. Margarets Fallout Sampler - Bulk No. 1	4
26	33NB01BR0002	CFB St. Margarets Fallout Sampler - Bulk No. 2	4
27	33NB01BR0003	CFB St. Margarets Fallout Sampler - Event No. 1	4
28	33NB01BR0004	CFB St. Margarets Fallout Sampler - Event No. 2	4
29	33NB01BV0001	Fundy National Park Fallout Sampler - Bulk No. 1	4
30	33NB01BV0002	Fundy National Park Fallout Sampler - Bulk No. 2	4
31	33NB01BV0003	Fundy National Park Fallout Sampler - Event No. 1	4
32	33NB01BV0004	Fundy National Park Fallout Sampler - Event No. 2	4

APPENDIX IX Cont'd

STATION	NAQUADAT	LOCATION	APPROX. # OF SAMPLES
33	-	Peabody Lake approx. 48 km NW of Newcastle	16
34	-	Big Nictau Lake approx. 50 km SE of St. Quentin	18
35	00NB01AH0002	Tobique River at Riley Brook	7
36	-	Miramichi River estuary at confluence with Big Bartibog River	2
37	-	Miramichi River estuary just off Bartibog Island	2
38	-	Miramichi River estuary between St. Andrews Point and Gordon Point	2
39	-	Miramichi River estuary off Metro Fuels Wharf	2
40	-	Miramichi River estuary off NBEPC Chatham Thermal Plant	2
41	-	Miramichi River estuary just upstream of Chatham bridge	2
42	-	Miramichi River estuary approx. halfway between Chatham bridge and Northwood Panel Board Wharf	2
43	-	Miramichi River estuary just off Northwood Panel Board Wharfk	2
44	-	Miramichi River estuary off Doyle Cove in shipping channel	2
45	-	Miramichi River estuary off Imperial Oil Wharf	2
46	-	Miramichi River just upstream of Morrisey Bridge, Newcastle	2
47	00NB01AD0001	Saint John River at Clair	18

APPENDIX IX Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
48	00NB01AD0008	Saint John River at Edmundston	18
49	00NB01AF0002	Saint John River of St. Leonard	18
50	00NB01AJ0006	Big Presquile Isle Stream at Tracey Mills	6
51	00NB01AJ0029	Meduxnekeag River at Belleville	6
52	01NB01AF0005	Saint John River above Grand Falls dam	18
53	01NB01AG0001	Aroostook River at Tinker Dam	6

a = For detailed location of stations, refer to Map #8.

APPENDIX X

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Atlantic Region Overview Network

SUBMITTER I. D.: 0099

PERIOD: May 1978 - Present

OBJECTIVES: To collect and analyze aquatic environmental quality data in order to maintain a Regional inventory of baseline information for:

(i) the periodic assessment of the quality of the aquatic environment;

(ii) the determination of gross trends in the aquatic environment; and

(iii) the fulfillment of our commitment to supply international agencies with ocean input data.

FIELD SAMPLING: Water Resources Branch staff

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients and metals

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	01NB01AF0005	Saint John River at Grand Falls Headpond	41
2	00NB01AJ0029	Meduxnekeag River at Belleville	41
3	00NB01AP0002	Kennebecasis River at Apohaqui	41

APPENDIX X Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX # OF SAMPLES
4	00NB01AR0001	St. Croix River at Milltown	41
5	00NB01BJ0056	Restigouche River at Rafting Ground Brook	41
6	00NB01BK0026	Nepisiguit River at Hwy 360	41
7	00NB01BØ0001	Southwest Miramichi River at Blackville	41
8	00NB01BQ0044	Northwest Miramichi River at Wayerton	41
9	00NB01BU0031	Petitcodiac River at Petitcodiac	41

a = For detailed location of stations, refer to Map #9

APPENDIX XI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: International Saint John River Basin Study

SUBMITTER I.D.: 0205

PERIOD: May 1978 - Present

OBJECTIVES: To conduct investigative studies in order to ascertain that water related activities on either side of the international border are not deleterious to the quality of the aquatic ecosystem on the other side of the border. Specifically, to monitor selected parameters in order to determine their conformity to water quality objectives, to monitor selected nutrients as a means of assessing the effectiveness of regulatory measures, and to update the historical data base on conservative parameters.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, metals, nutrients and major ions

STATIONS SAMPLED:

STATION [a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0009	Little River near Pelletier Mills	7
2	00NB01AD0013	St. Francis River near mouth	60
3	00NB01AD0016	Madawaska River at Edmundston	60
4	00NB01AD0017	Saint John River at Caron Brook	53
5	00NB01AD0019	Baker Brook at Baker Brook	9

APPENDIX XI Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
6	00NB01AD0031	Saint John River at St. Francis River	5
7	00NB01AF0002	Saint John River at St. Leonard	60
8	00NB01AF0005	Saint John River near Limestone	60
9	00NB01AF0008	Stream near Morell	7
10	00NB01AF0013	Grand River near St. Leonard	60
11	00NB01AF0014	Siegas River at Siegas	7
12	00NB01AF0015	Quisibis River at Hwy 2	7
13	00NB01AF0019	Iroquois River at Iroquois	7
14	00NB01AF0021	Green River near mouth	60
15	00NB01AF0038	Saint John River at St. Basile	9
16	00Nb01AG0003	Limestone River at Four Falls	60
17	00NB01AJ0012	Big Presque Isle Stream at International Border	60
18	00NB01AJ0029	Meduxnekeag River at Belleville	60
19	00NB01AF0005	Saint John River at Grand Falls	60
20	00NB01AG0001	Aroostook River at Tinker Dam	60

a = For detailed location of stations, refer to Map #10

APPENDIX XII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: International St. Croix River Basin Study

SUBMITTER I.D.: 0145

PERIOD: June 1978 - Present

OBJECTIVES: To ensure that water management actions and activities on either side of the international border are not deleterious to the quality of the aquatic ecosystem on the other side of the border, and to assess the effectiveness of water management actions and activities taken to rectify previously identified pollution problems, specifically by:

(i) monitoring selected parameters in order to determine their conformity to recently developed water quality objectives

(ii) monitoring selected nutrients as a means of assessing the effectiveness of regulatory measures

(iv) conducting special surveys to update the historical data base on conservative parameters.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, metals, nutrients and major ions (same samples).

STATIONS SAMPLED:

STATION[a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AR0011	Grand Lake outlet at Forest City, N. B.	38

APPENDIX XII Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
2	00NB01AR0002	St. Croix River at St. Croix	38
3	00NB01AR0013	St. Croix River at Kellyland	60
4	00NB01AR0014	St. Croix River near Woodland Mill - USA side	60
5	00NB01AR0017	St. Croix River at Baring - USA side	44
6	00NB01AR0018	St. Croix River at Baring mid river	44
7	00NB01AR0019	St. Croix River at Baring - Can side	44
8	00NB01AR0020	St. Croix River at Milltown - USA side	52
9	00NB01AR0001	St. croix River at Milltown - mid river	60
10	00NB01AR0021	St. croix River at Milltown - Can. side	52

a = For detailed location of stations, refer to Map #11

APPENDIX XIII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Interprovincial Saint John River Basin Study

SUBMITTER I.D.: 0315

PERIOD: July 1978 - March 1983

OBJECTIVES: To survey the interprovincial waters of the Saint John River Basin in order to acquire background information for:

(a) the initial chemical characterization of the waters

(b) the development of water quality objectives

(c) the initiation of water quality trend assessments.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Physical parameters, metals, herbicides and major ions (same samples).

STATIONS SAMPLED:

STATION[a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0013	Saint Francis River at mouth	20
2	00NB01AD0015	Madawaska River at Quebec border	20
3	00NB01AD0019	Baker Brook at Baker Brook	20

a = For detailed location of stations, refer to Map #12.

APPENDIX XIV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Interprovincial Restigouche River Basin Study

SUBMITTER I. D.: 0146

PERIOD: July 1978 - March 1983

OBJECTIVES: To monitor the interprovincial water of the Restigouche River in order to acquire the background information required for:

(a) the initial chemical characterization of the waters
(b) the development of water quality objectives
(c) the initiation of water quality trend assessments.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, major ions, physical parameters, nutrients and metals.

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # of SAMPLES
1	00NB01BA0001	Restigouche River near Kedgwick River	35
2	00NB01BJ0054	Restigouche River near Matapedia Interprovincial bridge	35
3	00NB01BB0007	Kedgwick River at mouth	35
4	00NB01BE0001	Upsalquitch River at Upsalquitch Station	35
5	00NB01BJ0055	Matapedia River at Matapedia	35

a = For detailed location of stations, refer to Map #13

APPENDIX XV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Dickey-Lincoln School Study

SUBMITTER I.D.: 0205

PERIOD: May 1978 - March 1982

OBJECTIVES:

(a) To adequately document the existing chemical, physical and biological water quality characteristics.

(b) To identify any changes in water quality characteristics during the construction, filling and operational phases of the dam.

(c) To monitor for non-degradation in water quality in the Saint John River above Edmundston, specifically by:

(i) operating a Phillips Automatic Water Quality Monitor at Caron Brook gathering a continuous record of DO, temperature and pH which will be employed to determine long term trends.

(ii) collecting background chemical data on major ions, nutrients and trace metals.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, nutrients, metals and major ions.

APPENDIX XV Cont'd

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0024	Saint John River at Grew Brook	16
2	00NB01AD0025	Saint John River at Kennedy Island near Clair	16
3	00NB01AD0017	Saint John River near Caron Brook	16 *

a = For detailed location of stations, refer to Map #14.

* Excluding the AWQM hourly data.

APPENDIX XVI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Pollutant Specific Survey

SUBMITTER I. D.: 0211

PERIOD: May 1979 - October 1982

OBJECTIVES: To locate, characterize and quantify the extent of contamination by toxic substances in the aquatic environment.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED:

Water
- Pentachlorophenols
- Triaryl Phosphates
- Chlorobenzenes
- Phthalate Esters
- Polynuclear Hydrocarbons
- Lead
- Mirex (1979 only)
- Arsenic (1979 only)

Bottom Sediments
- Chlorobenzenes
- Polynuclear Hydrocarbons
- Mercury
- Cadmium (1979 only)
- PCB (1979 only)
- Mirex (1979 only)

STATIONS SAMPLED:

STATION # [b]	NAQUADAT # [a]	LOCATION	APPROX. # OF SAMPLES
1	01NB01AD0004	Glasier Lake, above outlet	3
	51NB01AD0004	of St. Francis River	3
2	01NB01AD0005	Madawaska River Headpond	6

APPENDIX XVI Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
3	01NB01AF0005	Saint John River above Grand Falls	6
4	01NB01AF0006	Saint John river at Grand Falls	6
	51NB01AF0006	Headpond	6
5	01NB01AG0002	Aroostook River at Canada-USA	6
	51NB01AG0002	Border	6
6	01NB01AH0008	Lake Nictau	3
	51NB01AH0008		3
7	01NB01AJ0003	Saint John River at Beechwood	3
	51NB01AJ0003	dam	3
8	01NB01AK0012	Saint John River at Mactaquac	3
	51NB01AK0012	Headpond	3
9	01NB01AØ0019	Grand Lake near Jemseg	3
	51NB01AØ0019		3
10	00NB01AP0035	Saint John River at Lower Gagetown	6
11	02NB01AP0013	Saint John River near Center	3
	52NB01AP0013	Westfield	3
12	02NB01AP0014	Kennebecasis Bay near Gondola	3
	52NB01AP0014	Point	3
13	03NB01AP0001	Saint John Harbour near	3
	53NB01AP0001	Little River	3
14	02NB01AP0012	Saint John Harbour, near	3
	52NB01AP0012	Pier 9	3
15	01NB01AQ0028	Magauadavic Lake near Hills Head	3
	51NB01AQ0028		3
16	00NB01AR0001	St. Croix River at Milltown	6
17	52NB01AR0001	St. Croix River, 150 m above bridge, St. Stephen, Charlotte County (sampled in 1979)	3
18	52NB01AR0002	St. Croix River at Dennis Stream	3
19	01NB01AR0016	Spednic Lake near Casey Brook	3
	51NB01AR0016		3

APPENDIX XVI Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
20	00NB01BJ0056	Restigouche River at Rafting Ground Brook	6
21	03NB01BJ0001	Restigouche River near Dalhousie	3
	53NB01BJ0001	Island	3
22	01NB01BK0010	Nepisiguit River at Nepisiguit	3
	51NB01BK0010	Falls Headpond	3
23	00NB01BK0026	Nepisiguit River at Hwy 360	6
24	52NB01BK0002	Nepisiguit River near Bathurst	3
25	02NB01BK0001	Bathurst Harbour near mouth of	3
	52NB01BK0001	Nepisiguit River	3
26	03NB01BL0001	Bathurst Harbour near Daly Point	3
	53NB01BL0001		3
27	00NB01BØ0001	Southwest Miramichi River at Blackville	6
28	00NB01BQ0044	Northwest Miramichi River at Wayerton	6
29	02NB01BØ0001	Miramichi River at Chatham	3
	52NB01BØ0001		3
30	03NB01BØ0001	Miramichi River near Loggieville	3
31	01NB01BU0001	Petitcodiac Lake at center	3
	51NB01BU0001		3

a = A NAQUADAT station # whose first digit is 0 indicates water sampling while one whose first digit is 5 indicates bottom sediment sampling.

b - For detailed location of stations, refer to Map #15.

APPENDIX XVII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Acid Raid Baseline Sampling Network

SUBMITTER I. D.: 0099

PERIOD: April 1980 to present

OBJECTIVE: To maintain a network of benchmark surface water stations in selected watersheds in order to identify temporal trends of acid sensitive parameters.

FIELD SAMPLING: Water Resources Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, major ions, iron, manganese, zinc and aluminum

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AQ0001	Lepreau River at Lepreau	70
2	00NB01BV0015	Point Wolf River in Fundy National Park	70
3	00NB01AM0001	Northwest Oromocto River at Tracey	70
4	00NB01AN0001	Salmon River at Gaspereau Forks	70

a = For detailed location of stations, refer to Map #16

APPENDIX XVIII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE:	International Saint John River Bacteriological Survey
SUBMITTER I. D.:	0205
PERIOD:	Surveyed in August 1982, July 1983 and September 1984
OBJECTIVES:	Monitor selected bacteriological parameters in order to determine their conformity to water quality objectives and determine sources of pollution.
FIELD SAMPLING	Water Quality Branch staff
PARAMETERS ANALYZED:	Total and fecal coliforms, fecal streptococci

STATIONS SAMPLED:

STATION # [a]	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AD0001	Saint John River at Clair	33
2	00NB01AD0002	Madawaska River at Edmundston	12
3	00NB01AD0008	Saint John River at Edmundston	20
4	00NB01AD0009	Little River near Pelletier Mills	8
5	00NB01AD0013	St. Francis River near Mouth	16
6	00NB01AD0019	Baker Brook at Baker Brook	8
7	00NB01AD0032	Saint John River at St. Francis	20
8	00Nb01AD0033	Saint John river at St. Francois-de-Madawaska	10
9	00NB01AD0035	Mill Stream near St. Francois-de-Madawaska	8
10	00NB01AD0036	Vasser Brook near Clair	6

APPENDIX XVIII Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
11	00NB01AD0037	Thompson Brook near Clair	6
12	00NB01AD0038	Pelletier Brook at Caron Brook	8
13	00NB01AD0039	Felix Martin Brook near St. Hilaire	6
14	00NB01AD0040	St. John River near Iroquois River	8
15	00NB01AF0002	Saint John River at St. Leonard	28
16	00NB01AF0005	Saint John River near Limestone	22
17	00NB01AF0021	Green River near mouth	24
18	00NB01AF0023	Grand River near St. Leonard	32
19	00NB01AF0039	Saint John River at St. Basile	8

a = For detailed location of stations, refer to Map #17.

APPENDIX XIX

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Toxic Chemical Survey

SUBMITTER I.D.: 0211

PERIOD: 1983 to present

OBJECTIVES: To locate, characterize and quantify the extent of contamination by toxic substances in the aquatic environment, thereby providing information which can be used for the planning, development and implementation of preventative measures, controls and clean up.

Specifically, to screen for specific environmental contaminants in New Brunswick covering as broad a geographical area as possible and concentrating on perceived critical areas or in areas of federal interest.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: a) Water:

p,p-DDT
o,p-DDT
p,p-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Mirex
Aldrin
Endrin
HEOD (Dieldrin)
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine

APPENDIX XIX Cont'd

Metribuzine
Simazine
Carbofuran
Aldicarb
Carbaryl
Phorate
Guthion
Dimethoate
Imidan (Phosmat)
Benzo (a) Pyrene
Benzo (b) Fluoranthene
Benzo (g,h,i) Perylene
Benzo (k) Fluoranthene
Fluoranthene
Indeno (1,2,3,cd) Pyrene
Mercury
Cadmium
Aluminum
Zinc
Copper
Lead
Arsenic

b) Bottom Sediments:

p,p-DDT
o,p-DDT
p,p-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Beta Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Mirex
Aldrin
Endrin
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine
Metribuzine
Simazine
Carbofuran
Aldicarb
Carbaryl

APPENDIX XIX Cont'd

Phorate
Guthion
Malathion
Dimethoate
Imidan (Phosmat)
Benzo (a) Pyrene
Benzo (b) Fluoranthene
Benzo (g,h,i) Perylene
Benzo (k) Fluoranthene
Fluoranthene
Indino (1,2,3,cd) Pyrene
MCPA

c) Fish:

p,p-DDT
o,p-DDT
p,p-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Beta Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Aldrin
Endrin
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine
Metribuzine
Carbofuran
Aldicarb
Phorate
Guthion

STATION[b] #	NAQUADAT [a] #	LOCATION	APPROX. # OF SAMPLES
1	00NB01BQ0004	South Tomogonops River at Hwy 430	12

APPENDIX XIX Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
2	00NB01BQ0006	South Tomogonops River at Mouth to Northwest Miramichi River	12
3	00NB01BQ0044	Northwest Miramichi River at Wayerton	12
4	00NB01BQ0056	Northwest Miramichi River at Hwy 430	12
5	01NB01AD0006	Madawaska River Headpond	3
	51NB01AD0006		3
	91NB01AD0006		7
6	01NB01AF0005	Saint John River above Grand	3
	51NB01AF0005	Falls Dam	3
	91NB01AF0005		4
7	01NB01AF0007	Green River Reservoir	3
	51NB01AF0007		3
	91NB01AF0007		7
8	01NB01AG0002	Aroostook River at Canada-USA	6
	51NB01AG0002	Border	6
	91NB01AG0002		6
9	01NB01AH0009	Tobique River Headpond	6
	51NB01AH0009		6
	91NB01AH0009		6
10	01NB01AH0010	Sisson Branch Reservoir	3
	51NB01AH0010		3
	91NB01AH0010		2
11	01NB01AJ0003	Saint John River at Beechwood	3
	51NB01AJ0003	Headpond, 300 m above dam	3
	91NB01AJ0003		1
12	01NB01AJ0004	Saint John River at Beechwood	6
	51NB01AJ0004	Headpond 500 m above dam	6
13	01NB01AK0009	Saint John River at Pokiok	6
	51NB01AK0009		6
	91NB01AK0009		4

APPENDIX XIX Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
14	01NB01AK0012	Saint John River at Mactaquac	6
	51NB01AK0012	Headpond	6
15	01NB01AK0019	Saint John River at Mactaquac	3
	51NB01AK0019	Headpond near Walinik	3

a = A NAQUADAT station # whose first digit is a 0 indicates water sampling while one whose first digit is 5 indicates bottom sediment sampling and 9 indicates fish sampling.

b = For detailed location of stations, refer to Map #18.

APPENDIX XX

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Municipal Water Toxic Chemical Survey

SUBMITTER I. D.: 0211

PERIOD: Started in May 1985

OBJECTIVES: To screen for specific environmental contaminants in Raw Domestic Water Sources in New Brunswick, and collect general water quality data.

FIELD SAMPLING: Sampled twice a year (spring and fall)

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, aluminum, chromium, manganese, iron, nickel, copper, zinc, arsenic, cadmium, mercury, lead, organochlorine pesticides, PCBs, chlorinated benzenes, polyarmoatic hydrocarbons, organophosphate pesticides, chlorinated phenols, aldicarb, and carbaryl.

STATIONS SAMPLED:

STATION [a] #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
1	00NB01AH0007	Plaster Rock Water Supply - Tobique River	2
2	00NB01AØ0007	Oromocto Water Supply - Saint John River	2
3	00NB01BJ0057	Belledune Water Supply - Jacquet River	2
4	01NB01AD0040	Clair Water Supply - Thompson Lake	2
5	01NB01AP0008	Saint John Water LSupply - Spruce Lake	2

APPENDIX XX Cont'd

STATION #	NAQUADAT #	LOCATION	APPROX. # OF SAMPLES
6	01NB01BJ0015	Bathurst Water Supply - Reservoir	2
7	01NB01BJ0016	Campbellton Water Supply - Reservoir	2
8	01NB01BJ0017	Dalhousie Water Supply - Charlo River	2
9	01NB01BV0002	Moncton Water Supply - Turtle Creek	2
10	01NB01BV0017	Saint John Water Supply - Latimer Lake	2

a = For detailed location of stations, refer to Map #19.

APPENDIX XXI

LIST OF REPORTS, PUBLICATIONS AND/OR PRESENTATIONS

(1) "Scope, Procedure and Interpretation of Survey Studies; J.F.J. Thomas, Industrial Water Resources of Canada, Water Survey Report No. 1 (1953).

(2) "The Atlantic Provinces and the Saint John River Drainage Basins in Canada"; J.F.J. Thomas, Industrial Water Resources of Canada, Water Survey Report No. 11 (1960).

(3) "Specific Water Quality Objectives for the International Waters in the Saint John River Basin"; A report of the Water Quality Objectives Subcommittee to the Canada-US Committee on Water Quality in the Saint John River; S.W. Reeder et al., Water Quality Branch, Ottawa, Sept. (1975).

(4) "Report of the Canada-US Committee on Water Quality in the Saint John River"; R.H. Millest, Water Quality Branch, Ottawa (1975).

(5) "Automatic Water Quality Monitoring within the Saint John River Basin"; D.H. Cullen, Water Quality Parameters, ASTM STP 573, American Society for Testing Materials, p. 375 (1975).

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(6) "Surface Water Quality in Canada - An Overview"; Water Quality Branch, Inland Waters Directorate, Ottawa, Ont. (1977).

(7) "Water Quality Data Report - New Brunswick"; Water Quality Branch, Inland Waters Directorate, Ottawa, Ontario (1978).

(8) "Analysis of Aminocarb in Water and Sediments by Gas Liquid Chromatography and High Performance Liquid Chromatography"; G.L. Brun and R.M. MacDonald, presented at Aminocarb Symposium, Universite de Moncton, Moncton, N. B. (1978).

(9) "A Comparison Study of the Use of XAD-2 Resin and the Conventional Serial Solvent Extraction Procedure for the Analysis of Fenitrothion and some Derivatives in Water Preservation Techniques"; V.N. Mallet, G.L. Brun, R.M. MacDonald and K. Berkane, Journal of Chromatography 160, 81 (1978).

(10) "Water Quality Monitoring for Water Quality Objectives in the Saint John River Basin: Trace Metals and Chlorinated Hydrocarbons"; J.P. Witteman and V.A. Komadina, Internal Report, Water Quality Branch, Atlantic Region, Moncton, N.B. (1979).

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(11) "Water Quality Data Analysis and Sampling Program for the International Waters of the Saint John River Basin"; C.H. King, W.C. Ayer, R.C.H. Wilson, R. Thompson, J.P. Witteman and J.A. Barresi, Report to the Canada-US Committee on Water Quality in the Saint John River, Jan. (1979).

(12) "State of the Art in the Residue of Fenitrothion and Aminocarb"; G.L. Brun, 1978-79 EMOFICO Report, Fredericton, N. B. (1979).

(13) "Determination of Nonyl Phenol in Water and Sediment by High Performance Liquid Chromatography"; G.L. Brun and R.M. MacDonald, 1978-79 EMOFICO Report, Fredericton, N. B. (1979).

(14) "Interim Report: 1978/79 St. Croix River Basin Study"; P.E. Belliveau, Internal Report, Water Quality Branch, Atlantic Region, Moncton, N.B., Jan. (1979).

(15) "1978/79 St. Croix River Basin Study"; T.A. Clair, Internal Report, Water Quality Branch, Atlantic Region, Moncton, N. B., July (1979).

(16) "Water Quality Data Summary Report of the International Portions of the Saint John River Basin: 1965 to 1979"; P.E. Belliveau and S. Whitlow, WQB-AR-79-1, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Sept. (1979).

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(17) "Off-Target Fallout of Fenitrothion During 1978 Forest Spraying Operations in New Brunswick"; P.A. Pearce, G.L. Brun and J. Witteman, Bull. Environ. Contam. Toxicol. 23, 503 (1979).

(18) "Techniques Used to Detect Pesticides and Other Similar Chemicals in the Environment"; G.L. Brun, presented at the New Brunswick Teachers' Association Science Council Conference, Riverview, N.B. (1979).

(19) "Water Quality Objectives Setting in an International Milieu"; D.H. Cullen and P.E. Belliveau, WQB-AR-80-2, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., April (1980).

(20) "Acid Precipitation Sensitivity of Canada's Atlantic Provinces"; T.A. Clair, J.P. Witteman and S. Whitlow, presented at the American Society for Limnology and Oceanography Conference, Knoxville, Tennessee, Jan. (1980).

(21) "Water Quality Monitoring for Water Quality Objectives in the International Stretches of the Saint John River"; J.D. Meisner, WQB-AR-80-3, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., July (1980).

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(22) "Review and Update of Water Quality Objectives for the International Waters of the Saint John River Basin"; R.C. Wilson, P.E. Belliveau, J.S. Choate, D.C. Riley, J.A. Barresi, A. Carson and R.E. Thompson, International Technical Advisory Subcommittee on Water Quality in the Saint John River, Sept. (1980).

(23) "Comparison of 1979/80 Surveillance Data with Water Quality Objectives for the International Waters of the Saint John River Basin"; C.H. Wilson, P.E. Belliveau, J.S. Choate, D.C. Riley, J.A. Barresi, F. LaVallee and R.E. Thompson, International Technical Advisory Subcommittee on Water Quality in the Saint John River, Oct. (1980).

(24) "Determination of Aminocarb in Water by High Performance Liquid Chromatography"; G.L. Brun and R.M. MacDonald, Bull. Environm. Contam. Toxicol. 24, 886 (1980).

(25) "New Brunswick Interpretive Report"; P.E. Belliveau, Seminar Presentation, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Feb. 13 (1981).

(26) "Water Quality Branch Activities in New Brunswick: 1965-1980"; P.E. Belliveau and D.M. Lockerbie, IWD-AR-WQB-81-11, Water Quality Branch, Inland Waters Directorate, Moncton, N.B., Apr. (1981).

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(27) "Report on St. Croix River Water Quality - 1980"; D.M. Lockerbie and D.H. Cullen, IWD-AR-WQB-81-17, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Apr. (1981).

(28) "Acid Rain - Maritimes Perspective"; T.L. Pollock, presented to Departement de Chimie, Universite de Moncton, Moncton, N. B., Apr. (1981).

(29) "Dissolved Oxygen Modelling of the St. Croix River, Maine-New Brunswick"; W. Boutot and T.A. Clair, IWD Technical Bulletin No. 121, Water Quality Branch, Atlantic Region, Moncton, N. B. (1981).

(30) "Acid Precipitation Sensitivity of Canada's Atlantic Provinces"; T.A. Clair, J.P. Witteman and S.H. Whitlow, IWD Technical Bulletin No. 124, Water Quality Branch, Atlantic Region, Moncton, N.B. (1982).

(31) "Water Quality Survey of the Saint John River below the Proposed Dickey-Lincoln Hydroelectric Development: 1978-80"; R.G. Bradford, R.A. Bingham and J.D. Meisner, IWD-AR-WQB-82-35, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Dec. (1982).

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(32) "International Saint John River Fecal Coliform Survey, August 1982"; H.S. Bailey, IWD-AR-WQB-83-38, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Dec. (1982).

(33) "Trends in pH, Calcium and Sulphate of Rivers in Atlantic Canada"; T.A. Clair and P.H. Whitfield, Limnol. Oceanogr. 28(1), 160 (1983).

(34) "Survey of Toxic Inorganic Constituents in the Atlantic Region's Aquatic Environment"; P.E. Belliveau and H.S. Bailey, IWD-AR-WQB-83-40, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Mar. (1983).

(35) "Interpretation of 1980/81 Surveillance Data for the International Waters of the Saint John River Basin"; R.C. Wilson, P.E. Belliveau et al., International Technical Advisory Subcommittee on Water Quality in the Saint John River, Feb. (1983).

(36) "Monitoring of Off-Target Fallout during the Spruce Budworm Spray Program"; H.S. Bailey and T.L. Pollock, EMOFICO Interim Report 1982, Environment New Brunswick, pp. 45-47 (1983).

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(37) "Measurement of Lead, Cadmium, Arsenic and Mercury in Precipitation Events"; M.C. Mehra, Technical Bulletin No. 127, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B. (1982).

(38) "Report on 1982 Saint John River Automatic Water Quality Monitor Data at Grand Falls, N.B."; R. Bingham and G. Howell, IWD-AR-WQB-83-47, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Sept. (1983).

(39) "Determination of Sulphate in Atlantic Canada Surface Waters"; T.L. Pollock, presented at the Kejimkujik National Park Workshop, Dalhousie University, Halifax, N.S., April (1983).

(40) "Survey of Toxic Organic Constituents in the Atlantic Region's Aquatic Environment (1979-81)"; H.S. Bailey and G.D. Howell, IWD-AR-WQB-83-48, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Oct. (1983).

(41) "1982-83 St. Croix River Water Quality Report"; G. Howell and D. Lockerbie, IWD-AR-WQB-83-49, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Oct. (1983).

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(42) "St. Croix River Water Quality during the Years 1965 to 1981"; G.D. Howell and D.M. Lockerbie, IWD-AR-WQB-83-50, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Oct. (1983).

(43) "Survey of Toxic Constituents in the Atlantic Region's Aquatic Environment - 1982"; H.S. Bailey, IWD-AR-WQB-84-55, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Feb. (1984).

(44) "Compliance of Selected Water Quality Parameters to Objectives of the International Waters of the Saint John River Basin during the Years 1982 and 1983"; G. Howell, IWD-AR-WQB-84-56, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Mar. (1984).

(45) "The Relationship of the Water Quality of the St. Croix River to Pulp Mill Effluent Discharge"; G. Howell, IWD-AR-WQB-84-59, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Mar. (1984).

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(46) "Report on the 1983 Saint John River Automatic Water Quality Monitor Data at Grand Falls, N.B."; G. Howell and R. Bingham, IWD-AR-WQB-84-66, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., June (1984).

(47) "1983/84 St. Croix River Water Quality Report"; G. Howell and D. Lockerbie, IWD-AR-WQB-84-68, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Aug. (1984).

(48) "International Saint John River Bacteriological Survey (July 1983)"; H.S. Bailey, IWD-AR-WQB-84-70, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Oct. (1984).

(49) "Report on the 1984 in situ Monitoring of the Saint John River, N.B."; G.Howell, R. Bingham and T. Springer, IWD-AR-WQB-85-74, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Apr. (1985).

(50) "Results of the 1984/85 Monitoring of the Saint John River, N.B."; G. Howell, IWD-AR-WQB-85-77, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Mar. (1985).

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(51) "Field Quality Control/Quality Assurance Program. Results of 1984/85 Sequential Triplicate Sampling"; R. Arseneault and G. Howell, IWD-AR-WQB-85-78, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Mar. (1985).

(52) "Preliminary Study of Forestry Herbicide Residues in Northern New Brunswick"; R. Arseneault and W. Ernst, IWD-AR-WQB-85-83, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., June (1985).

(53) "1984/85 St. Croix River Water Quality Report"; G. Howell, IWD-AR-WQB-85-89, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Aug. (1985).

(54) "1983 Toxic Chemical Survey: A Survey of Nine Impoundments in the Saint John River Basin"; H. S. Bailey, IWD-AR-WQB-85-88, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., Sept. (1985).

(55) "International Saint John River Bacteriological Survey - August/ September 1984"; H. S.Bailey, IWD-AR-WQB-85-75, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., Nov. (1985).

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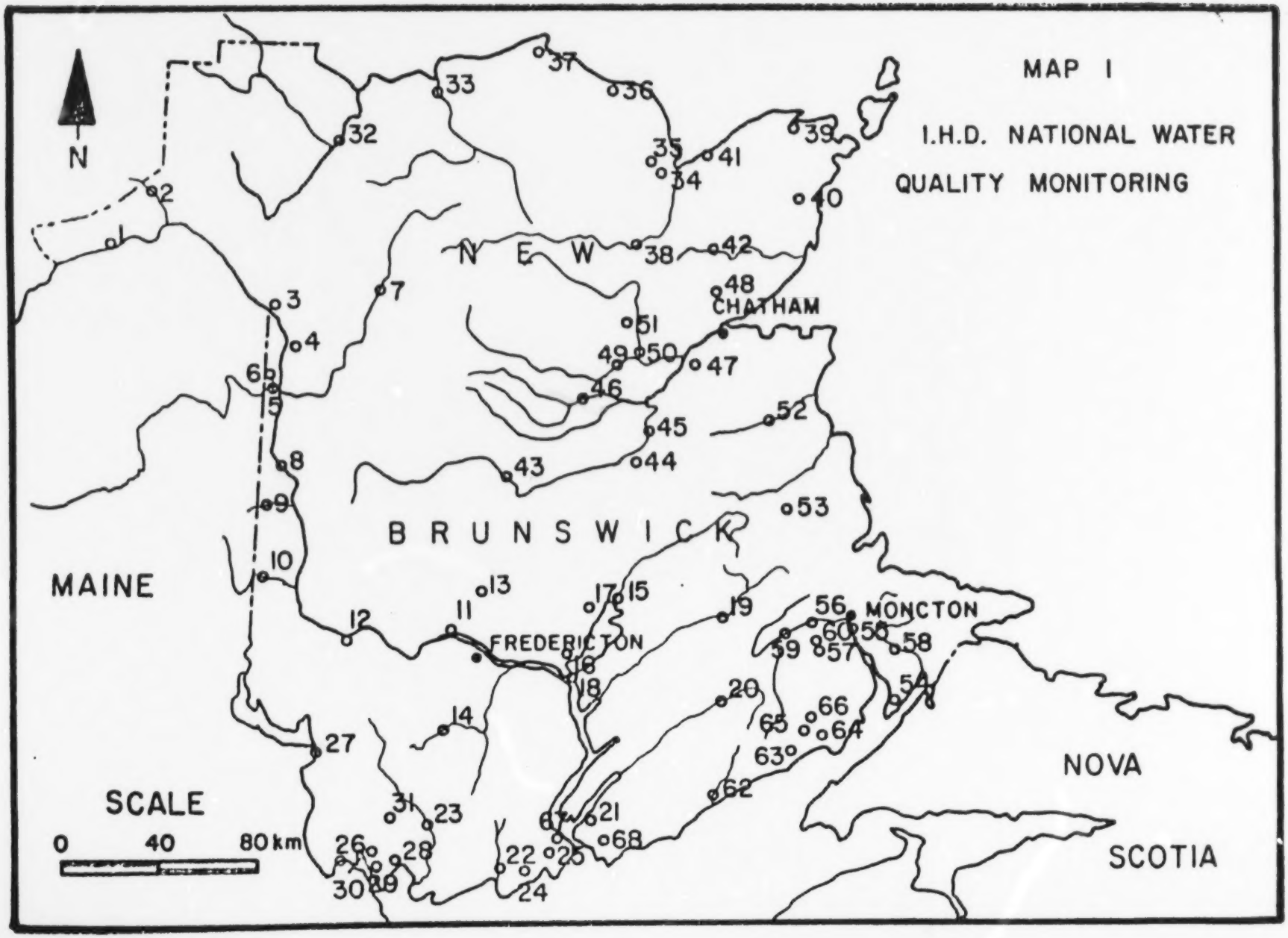
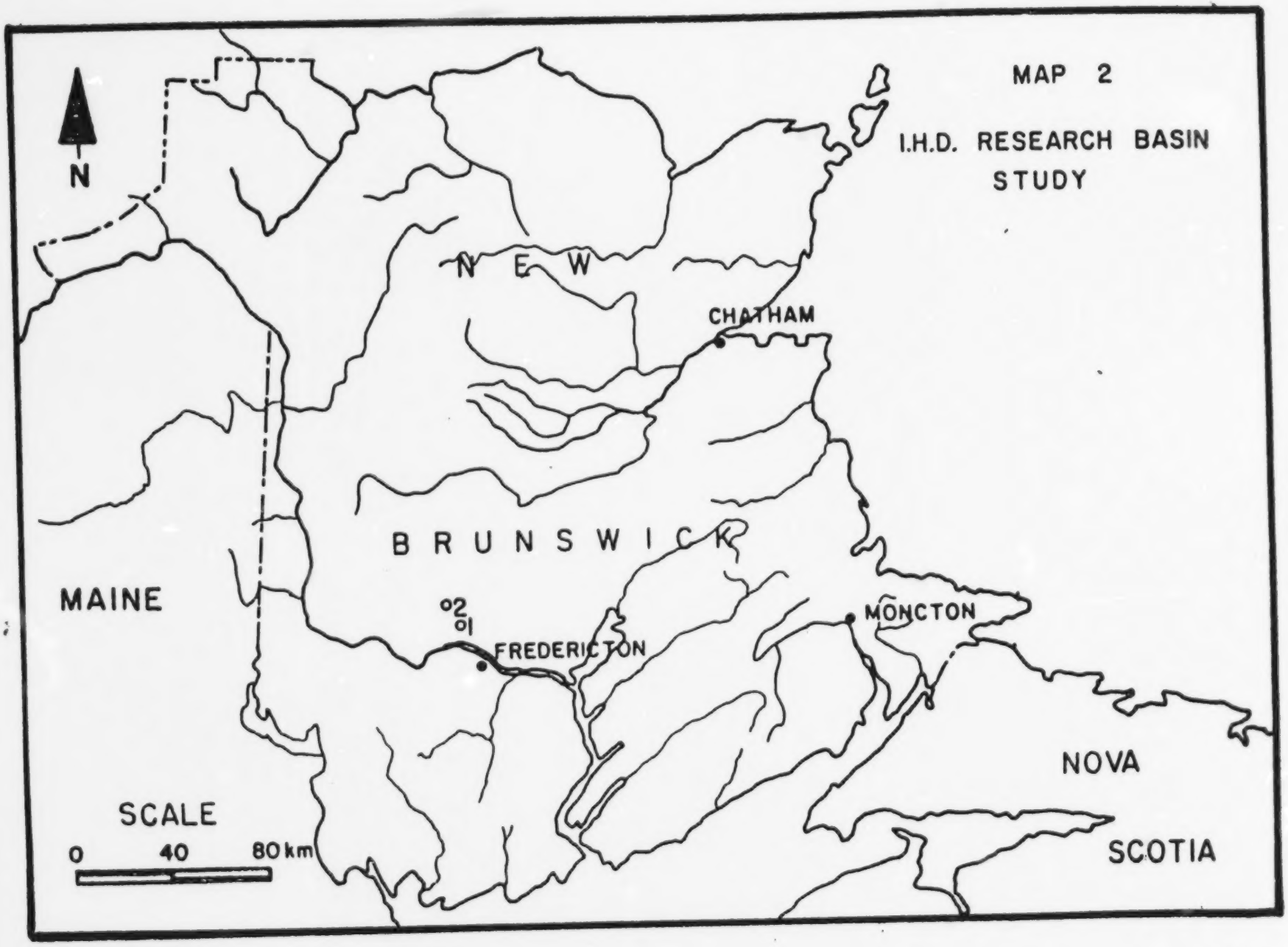
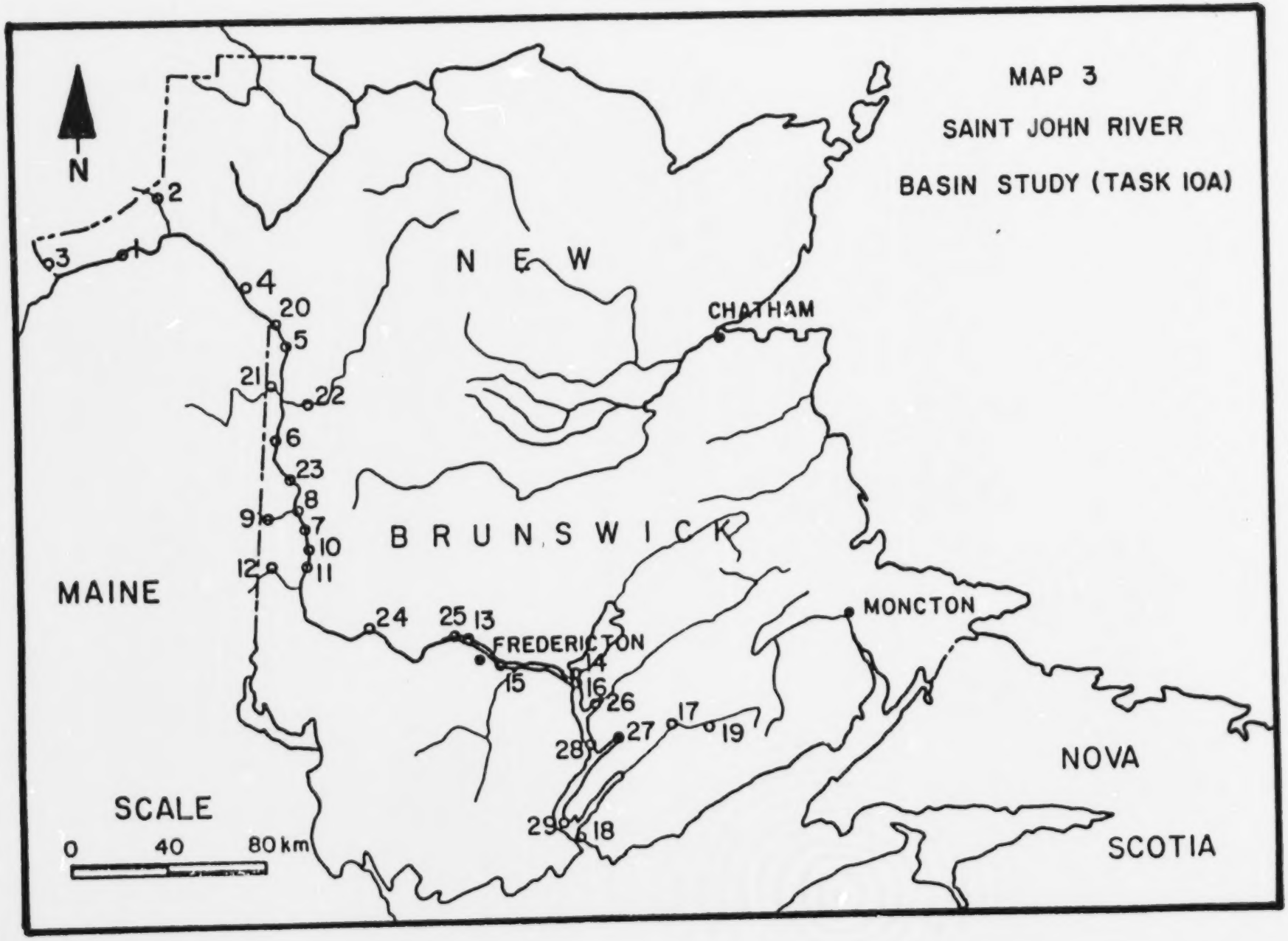
(56) "Dissolved Oxygen Modelling of the St. Croix River - Comparison of Models"; W. Boutot and G. Howell, Technical Bulletin No. 135, Inland Waters Directorate, Moncton, N. B. (1985).


MAP I
I.H.D. NATIONAL WATER
QUALITY MONITORING
N
N E W
CHATHAM
BRUNSWICK
MAINE
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80 km


MAP 2
I.H.D. RESEARCH BASIN
STUDY
N
N E W
CHATHAM
BRUNSWICK
MAINE
02
01
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80 km


MAP 3
SAINT JOHN RIVER
BASIN STUDY (TASK 10A)
N
N E W
B R U N S W I C K
MAINE
CHATHAM
MONCTON
FREDERICTON
NOVA
SCOTIA
SCALE
0 40 80 km
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
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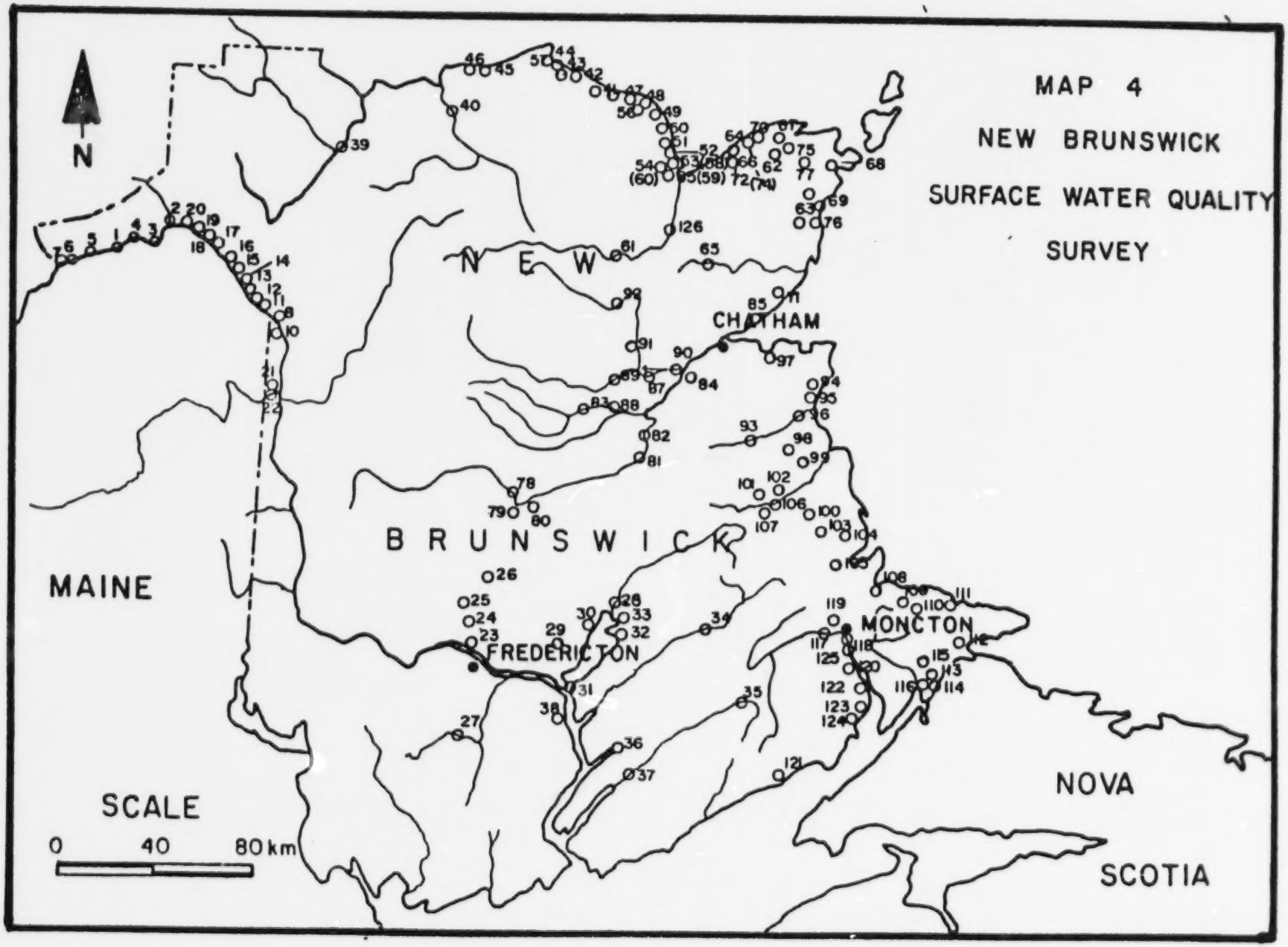
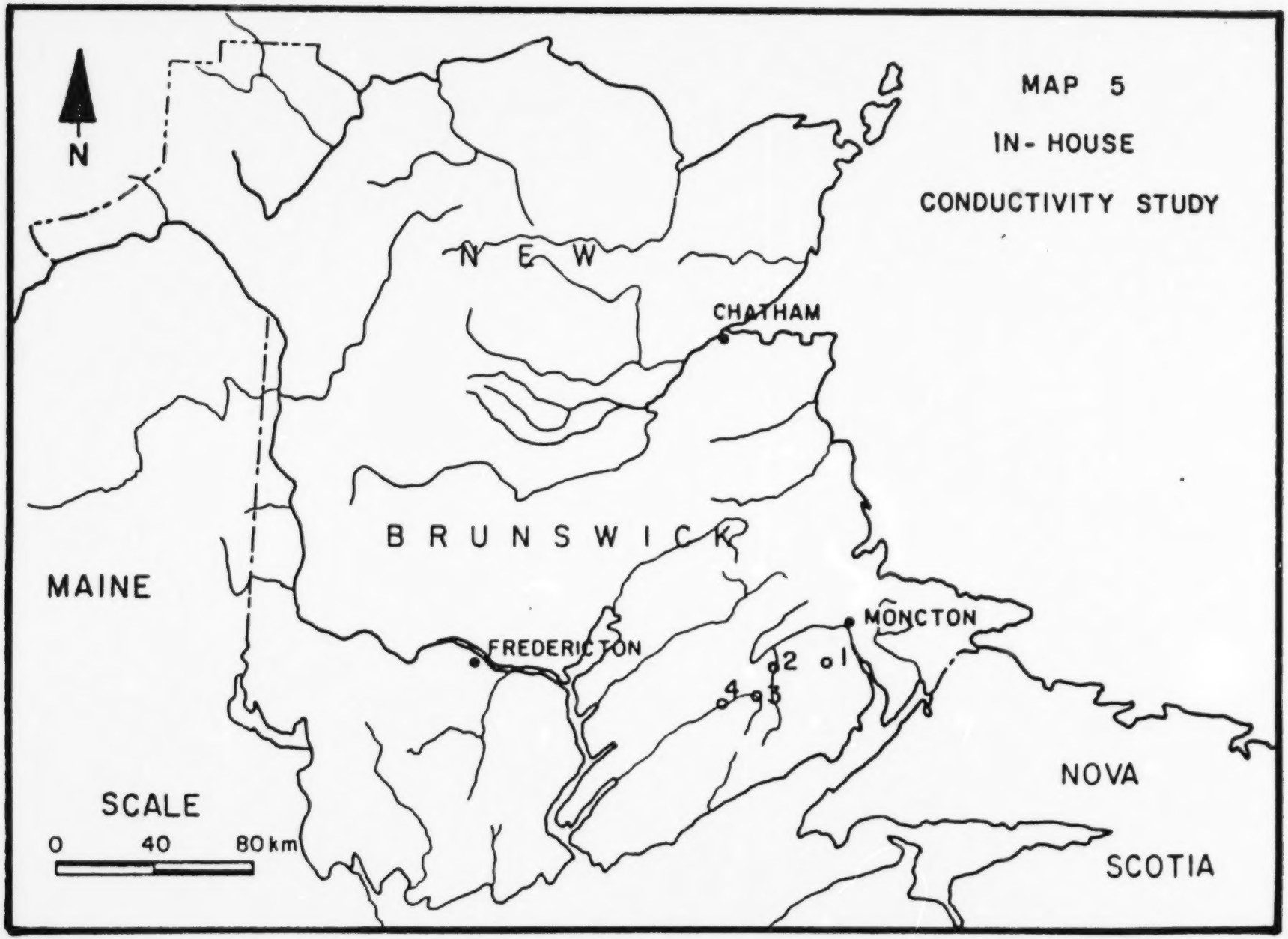
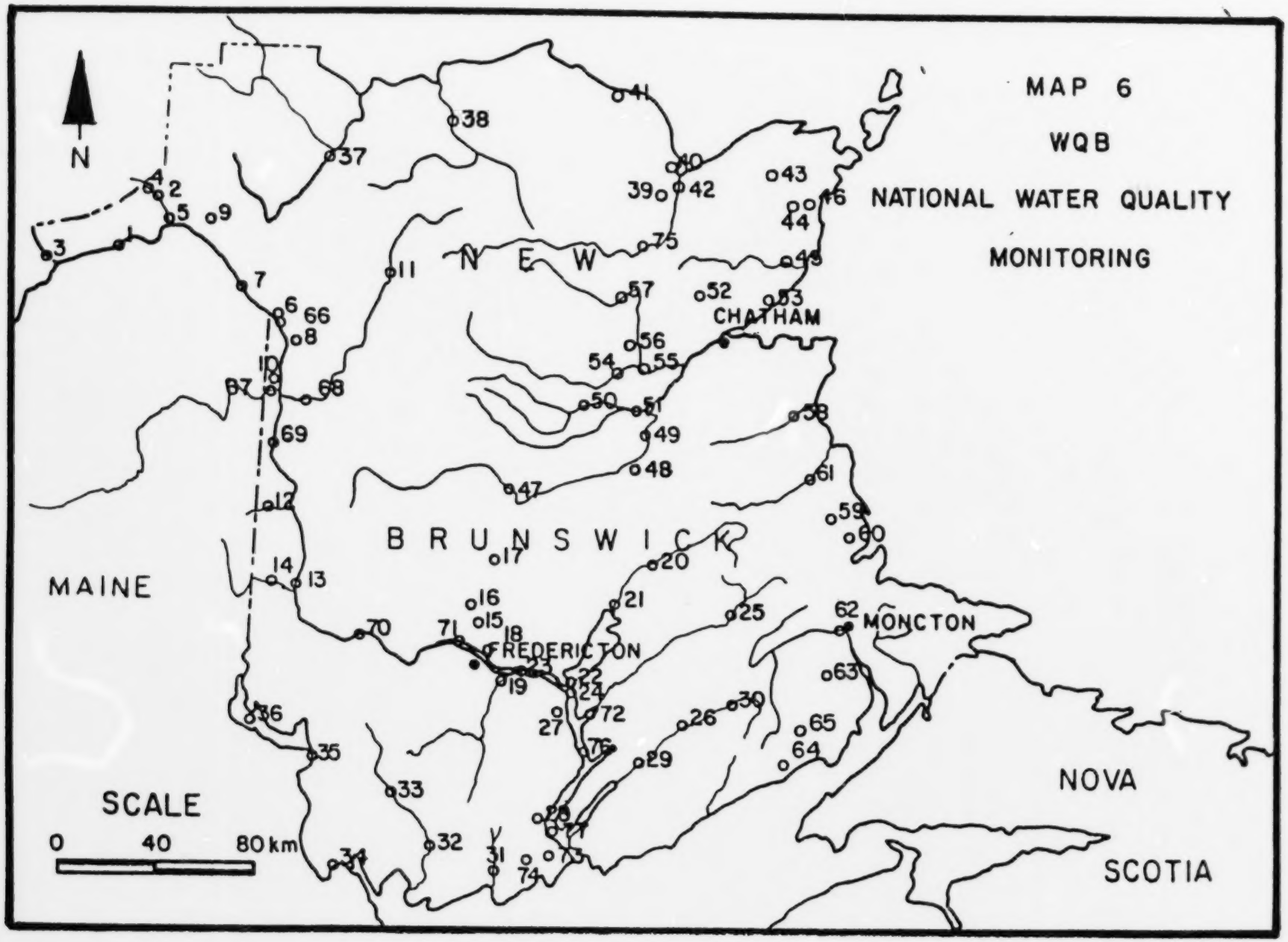
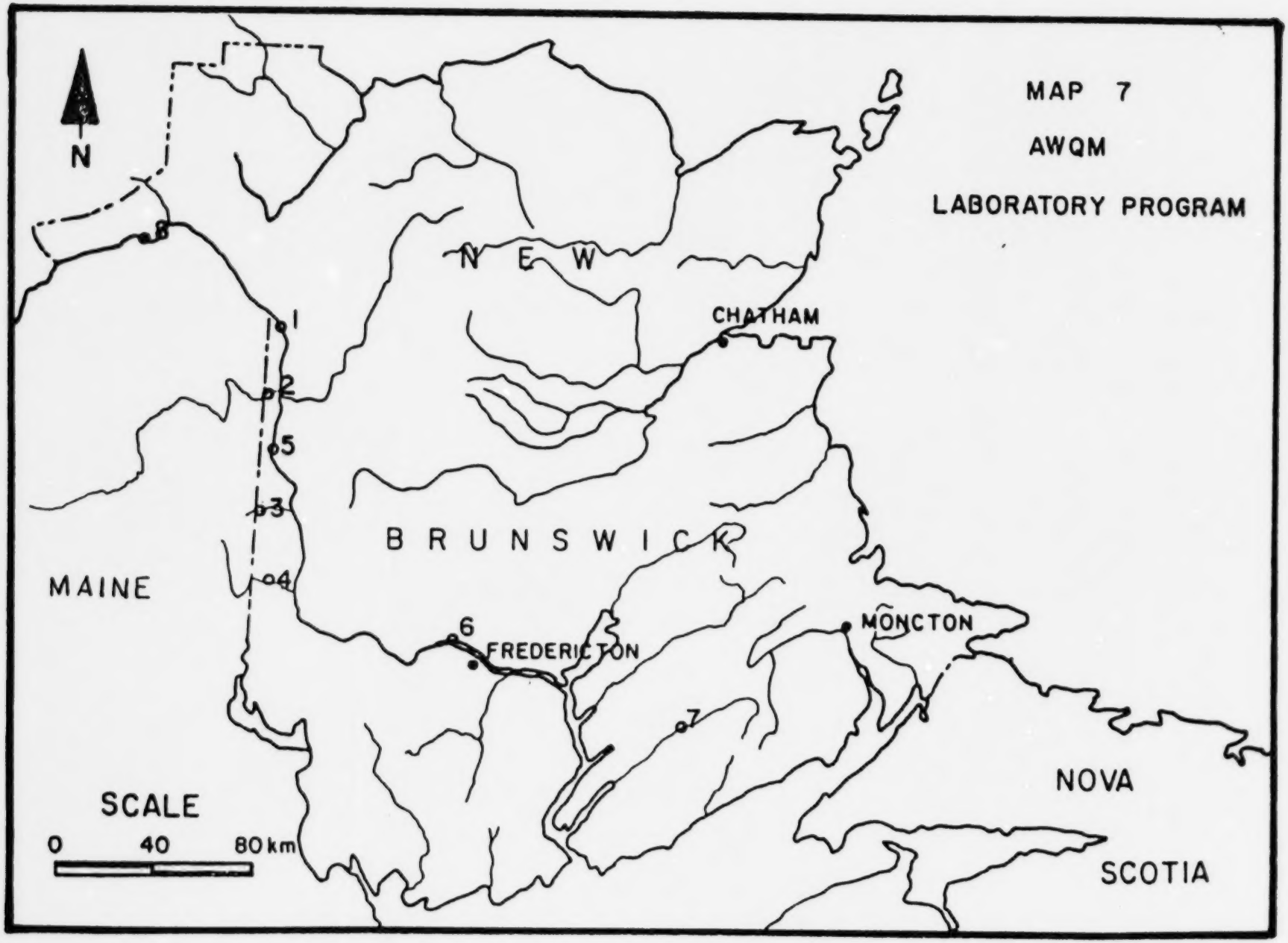
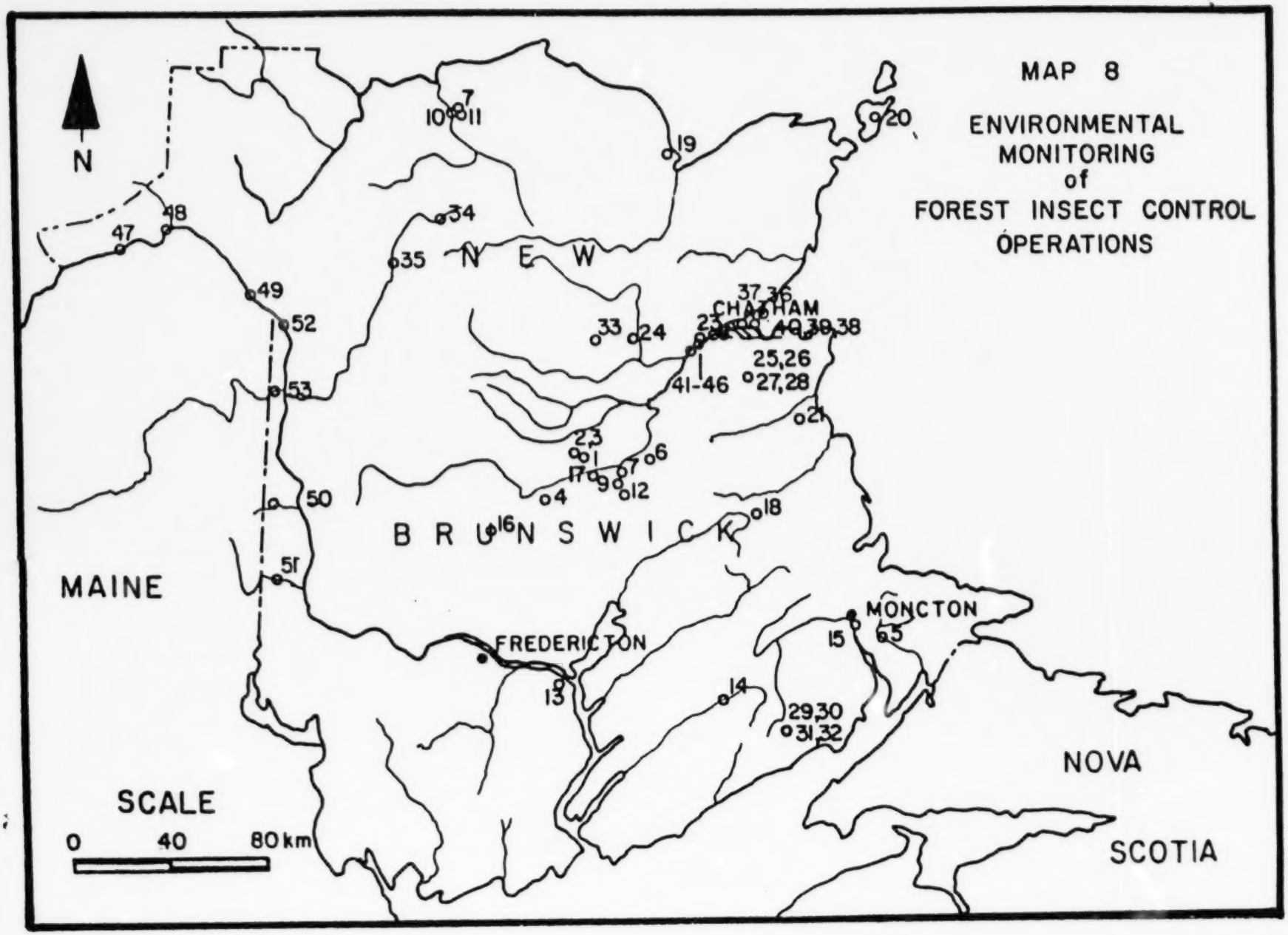
29

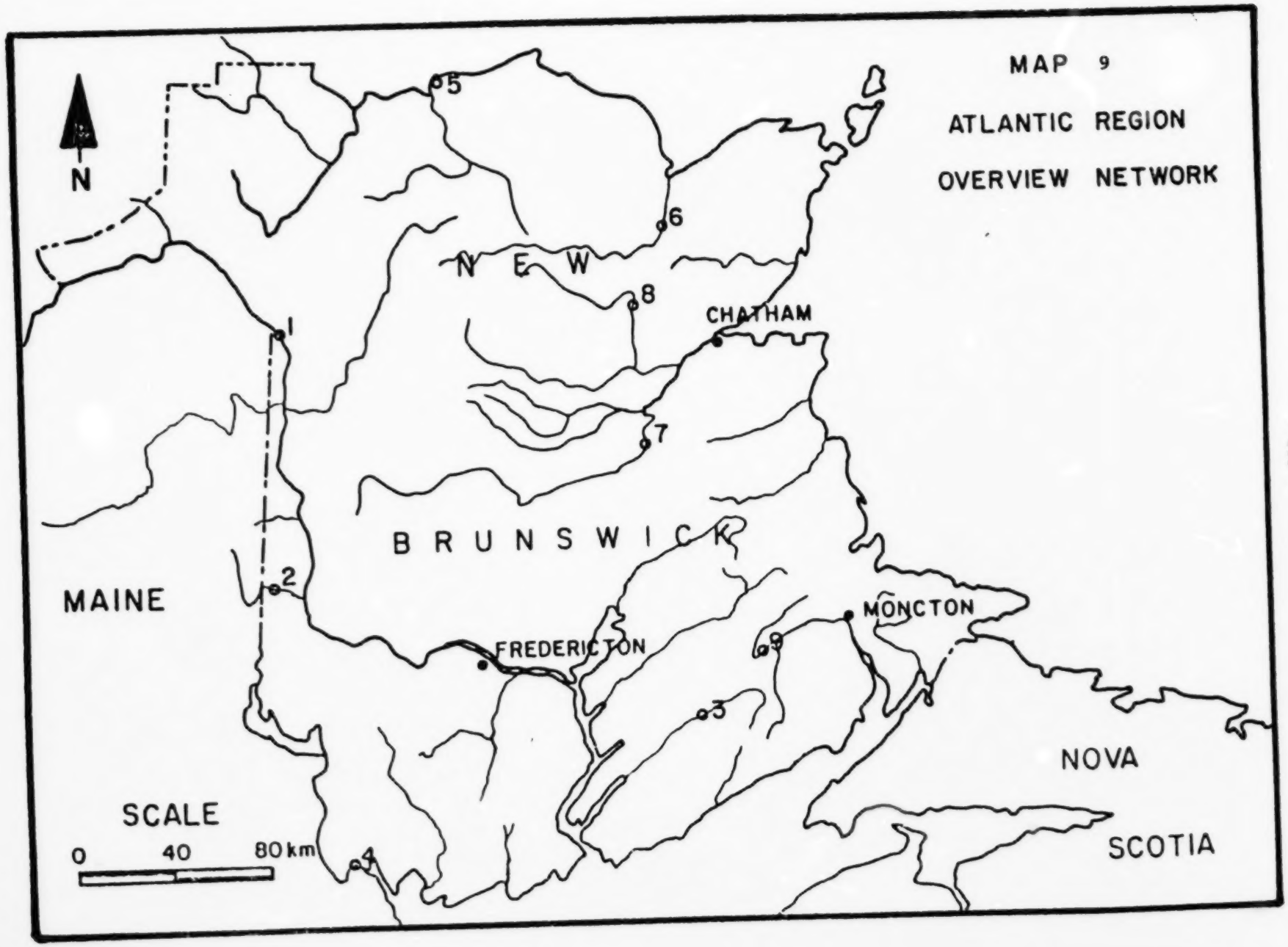

MAP 4
NEW BRUNSWICK
SURFACE WATER QUALITY
SURVEY
N
N E W
B R U N S W I C K
CHATHAM
FREDERICTON
MONCTON
MAINE
NOVA
SCOTIA
SCALE
0 40 80 km

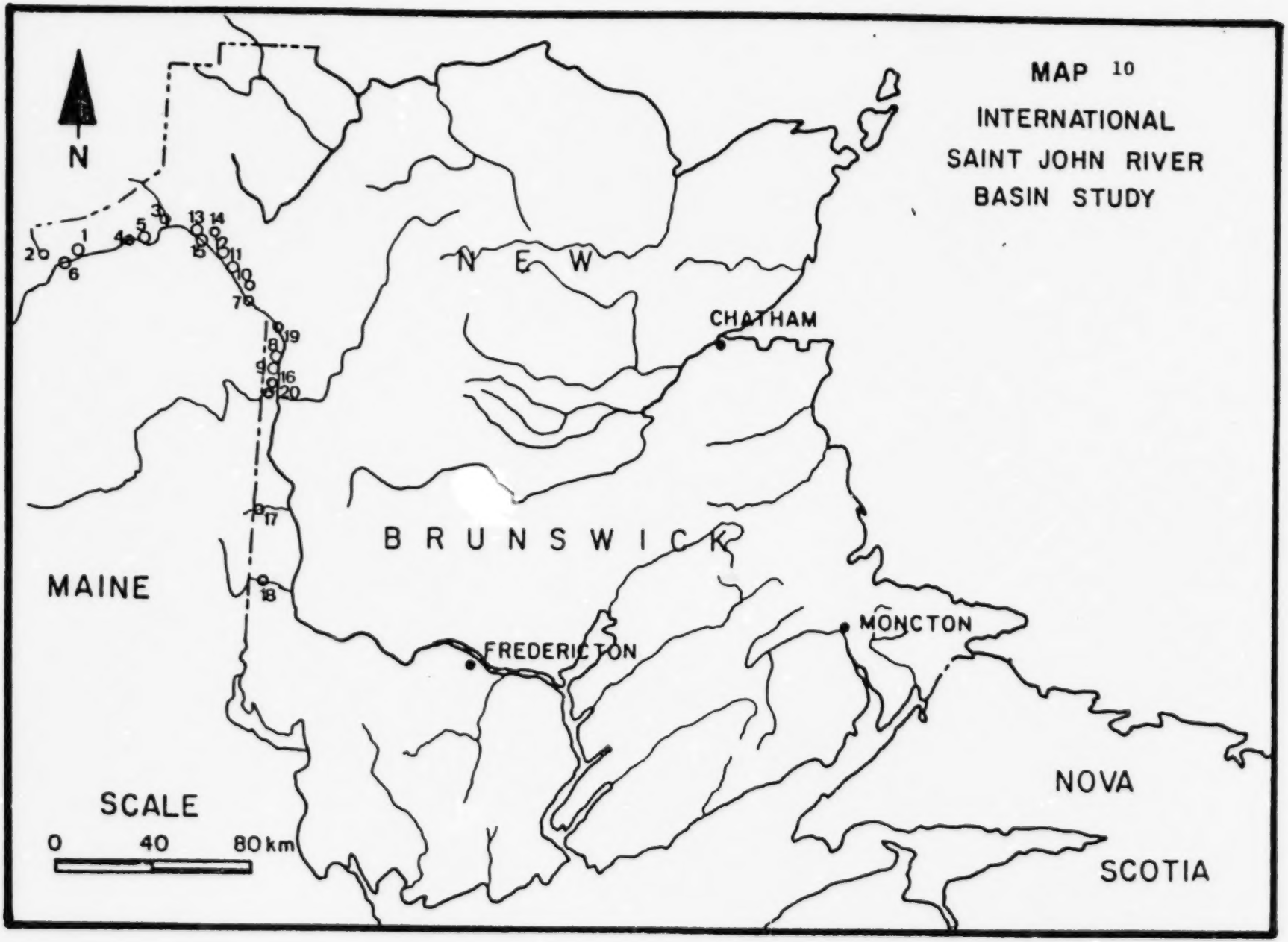

MAP 5
IN- HOUSE
CONDUCTIVITY STUDY
N
N E W
CHATHAM
BRUNSWICK
MAINE
FREDERICTON
MONCTON
1
2
3
4
NOVA
SCOTIA
SCALE
0 40 80 km

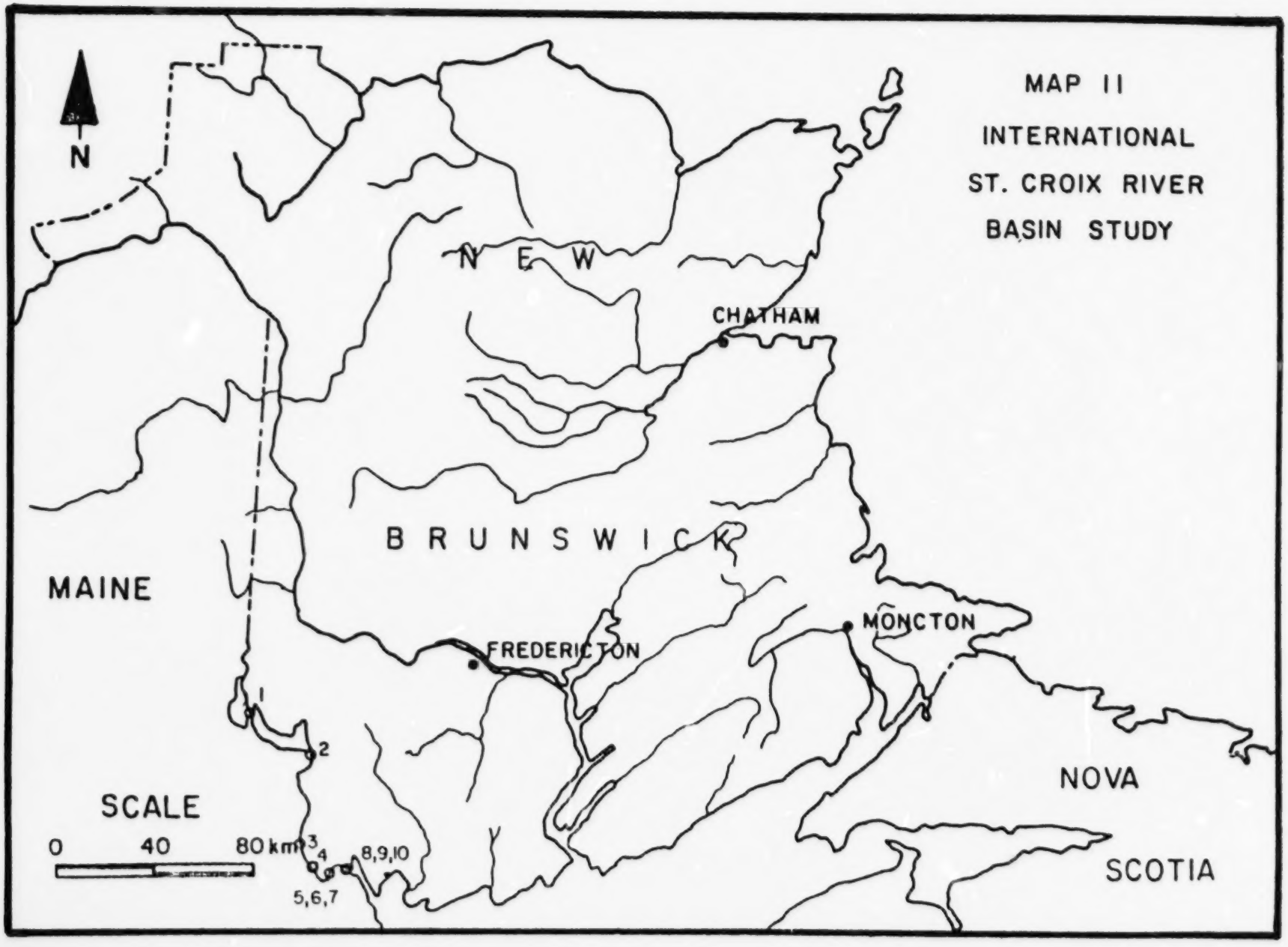

MAP 6
WQB
NATIONAL WATER QUALITY
MONITORING
N
NEW
BRUNSWICK
MAINE
NOVA
SCOTIA
CHATHAM
FREDERICTON
MONCTON
SCALE
0 40 80 km

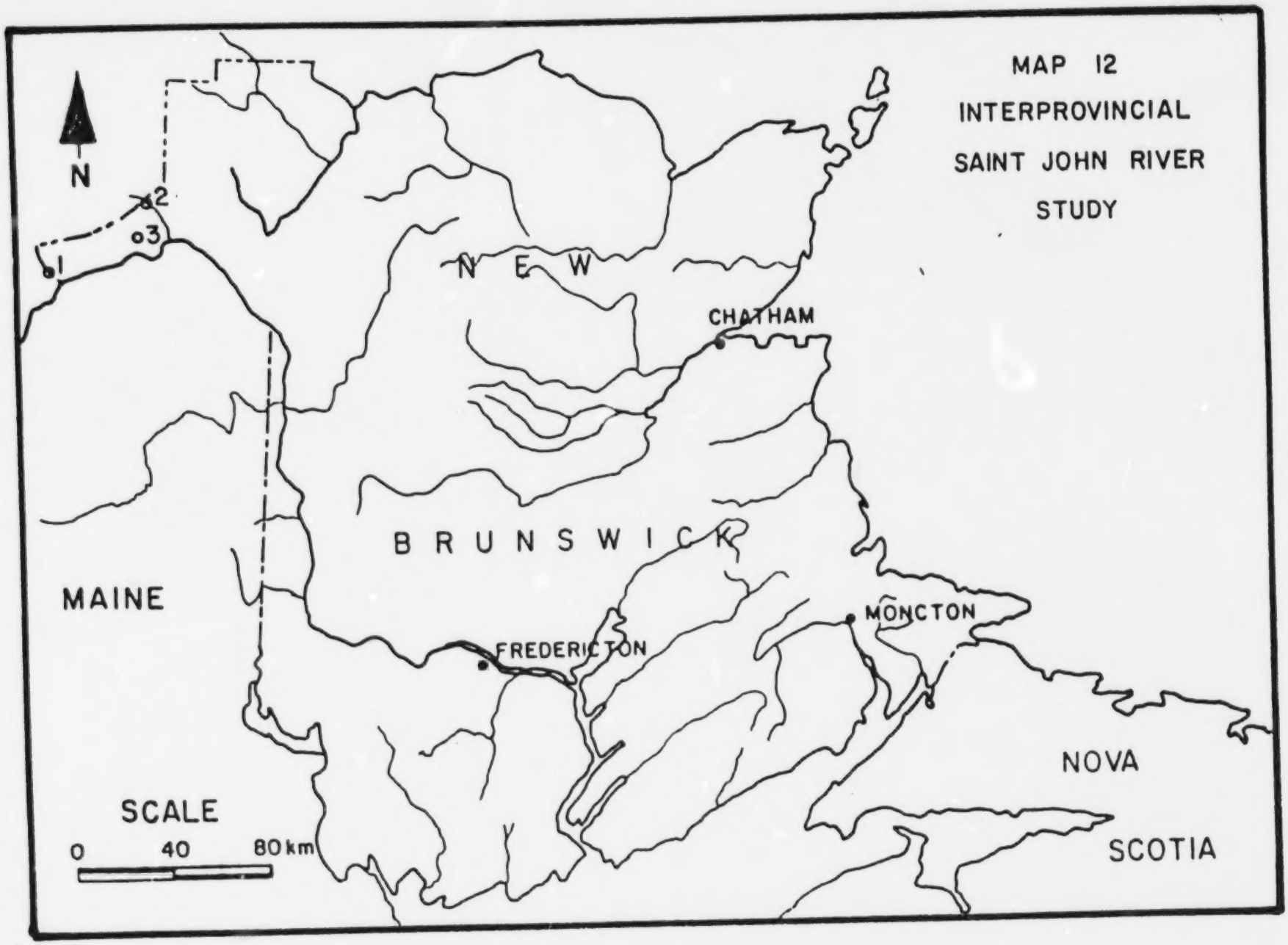

MAP 7
AWQM
LABORATORY PROGRAM
N
N E W
B R U N S W I C K
MAINE
CHATHAM
MONCTON
FREDERICTON
NOVA
SCOTIA
1
2
3
4
5
6
7
8
SCALE
0 40 80 km

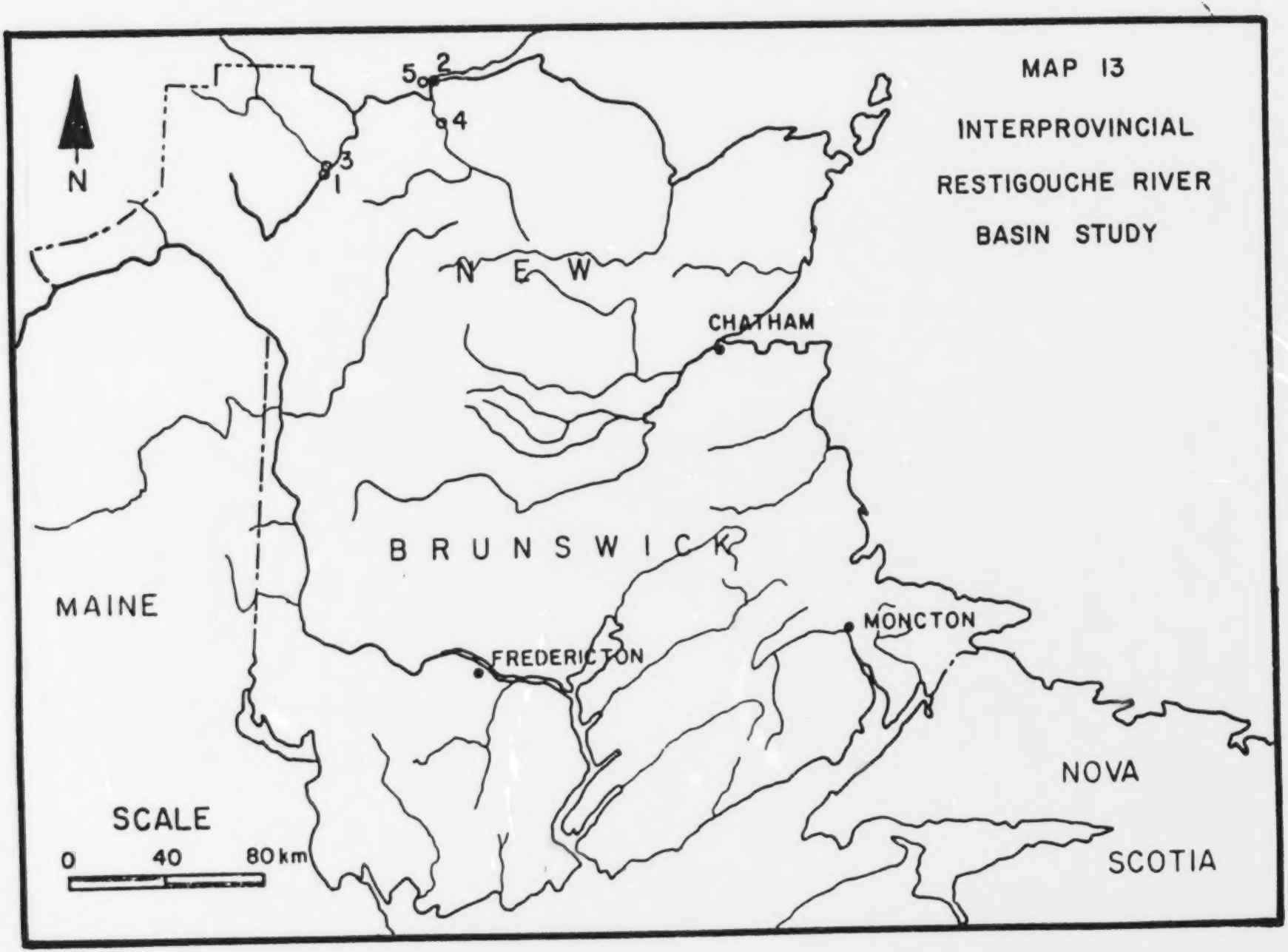

MAP 8
ENVIRONMENTAL MONITORING of FOREST INSECT CONTROL OPERATIONS
N
N E W
B R U N S W I C K
MAINE
NOVA SCOTIA
CHATHAM
FREDERICTON
MONCTON
SCALE
0 40 80 km
10 7 11
19
20
34
47
48
35
49
52
53
37 36
33
24
23
38,39,40
25,26
27,28
41-46
21
2,3
1
17
9
7
6
12
4
50
16
18
51
15
65
14
13
29,30
31,32

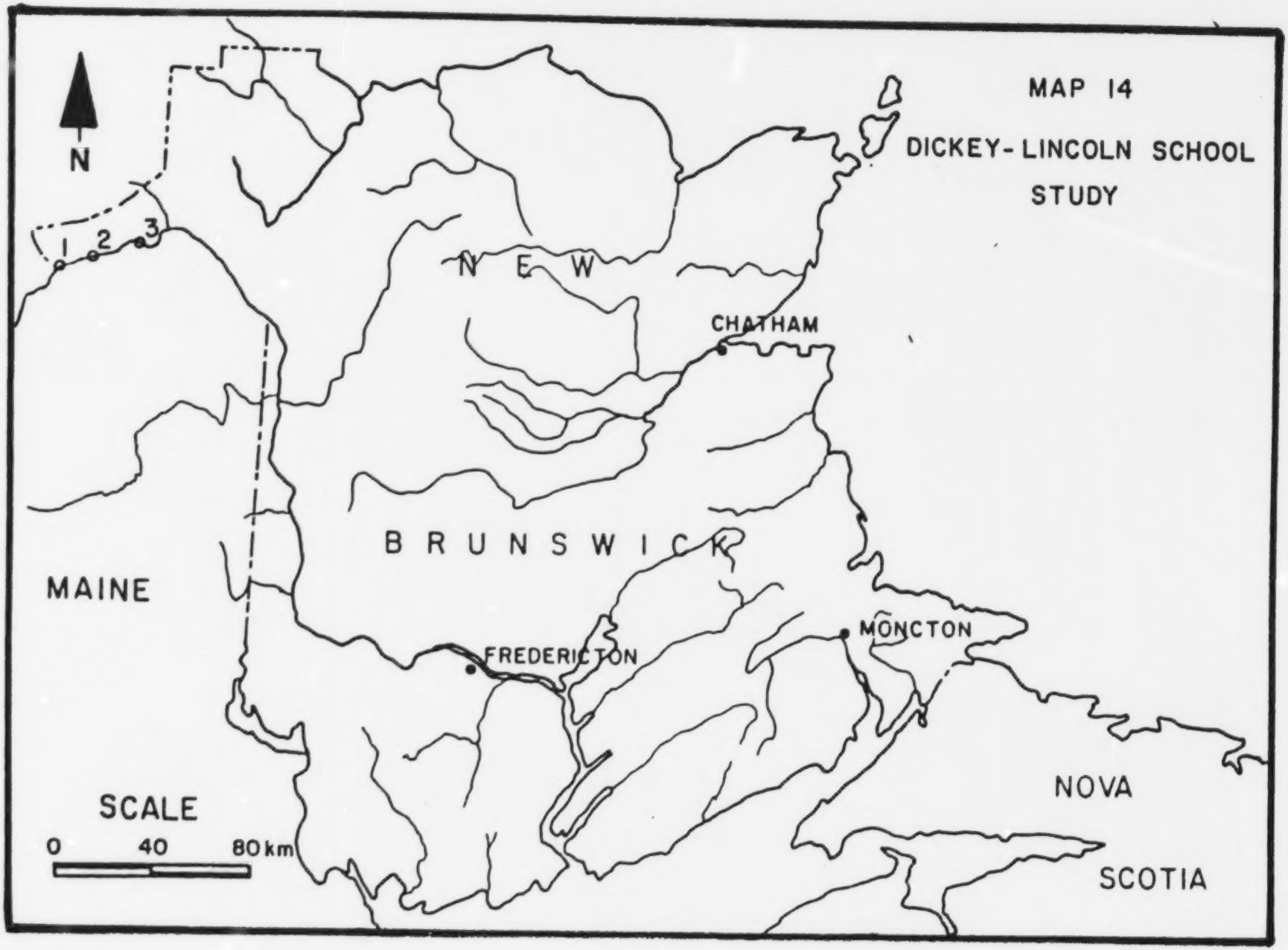

MAP 9
ATLANTIC REGION
OVERVIEW NETWORK
N
N E W
B R U N S W I C K
MAINE
NOVA
SCOTIA
CHATHAM
MONCTON
FREDERICTON
1
2
3
4
5
6
7
8
9
SCALE
0 40 80km

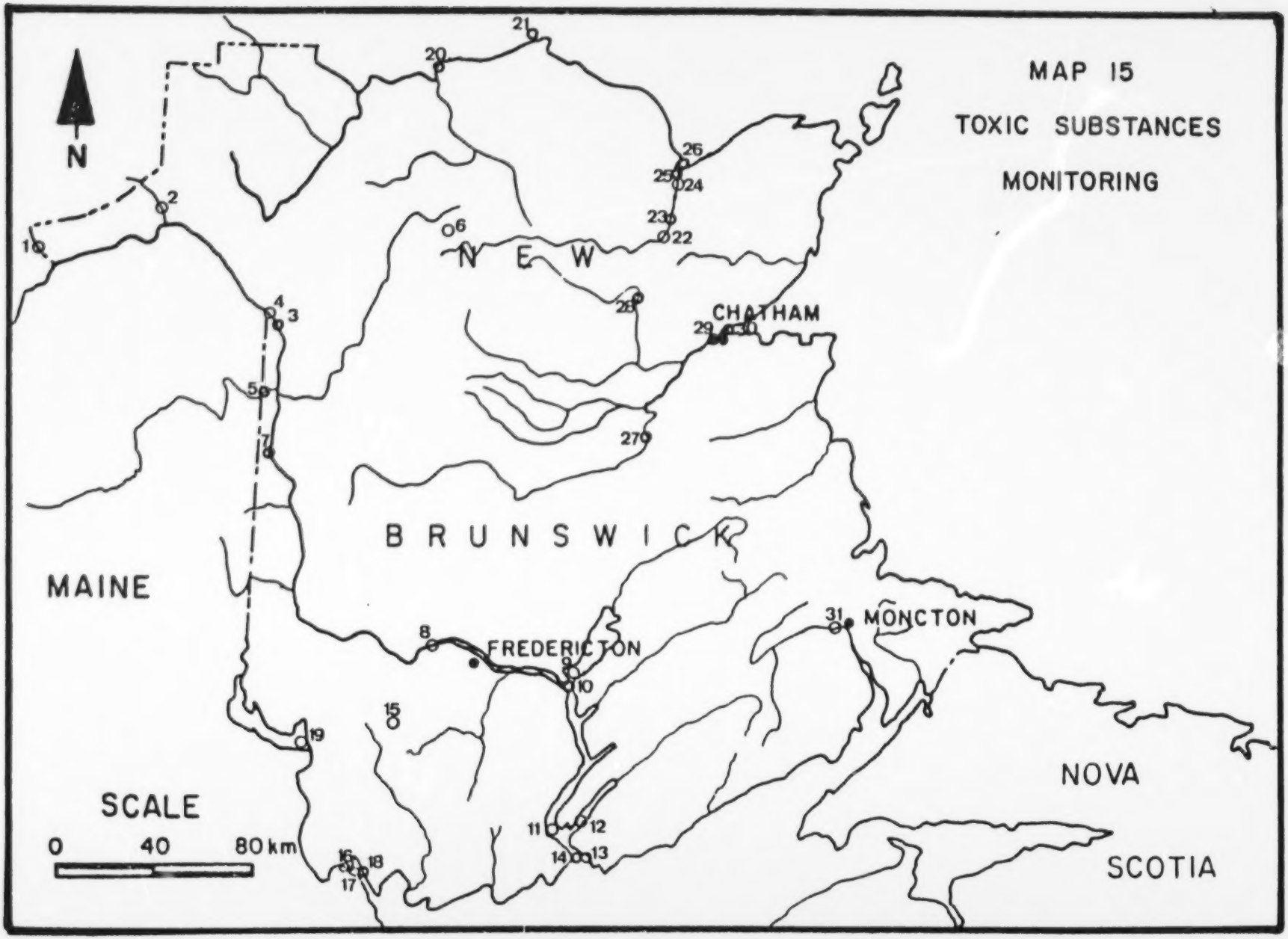

MAP 10
INTERNATIONAL
SAINT JOHN RIVER
BASIN STUDY
N
N E W
B R U N S W I C K
MAINE
CHATHAM
MONCTON
FREDERICTON
NOVA
SCOTIA
SCALE
0 40 80 km
1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 19 20


MAP II
INTERNATIONAL
ST. CROIX RIVER
BASIN STUDY
N
N E W
CHATHAM
B R U N S W I C K
MAINE
MONCTON
FREDERICTON
NOVA
SCOTIA
SCALE
0 40 80 km
1
2
3
4
5,6,7
8,9,10


MAP 12
INTERPROVINCIAL
SAINT JOHN RIVER
STUDY
N
1
2
3
N E W
CHATHAM
B R U N S W I C K
MAINE
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80 km


MAP 13
INTERPROVINCIAL
RESTIGOUCHE RIVER
BASIN STUDY
N
1
2
3
4
5
N E W
CHATHAM
B R U N S W I C K
MAINE
MONCTON
FREDERICTON
NOVA
SCOTIA
SCALE
0 40 80km


MAP 14
DICKEY- LINCOLN SCHOOL STUDY
N
1
2
3
N E W
CHATHAM
B R U N S W I C K
MAINE
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80km


MAP 15
TOXIC SUBSTANCES
MONITORING
N
NEW
BRUNSWICK
CHATHAM
FREDERICTON
MONCTON
MAINE
NOVA
SCOTIA
SCALE
0 40 80 km
1
2
3
4
5
6
7
8
10
11
12
13
14
15
16
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18
19
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21
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29
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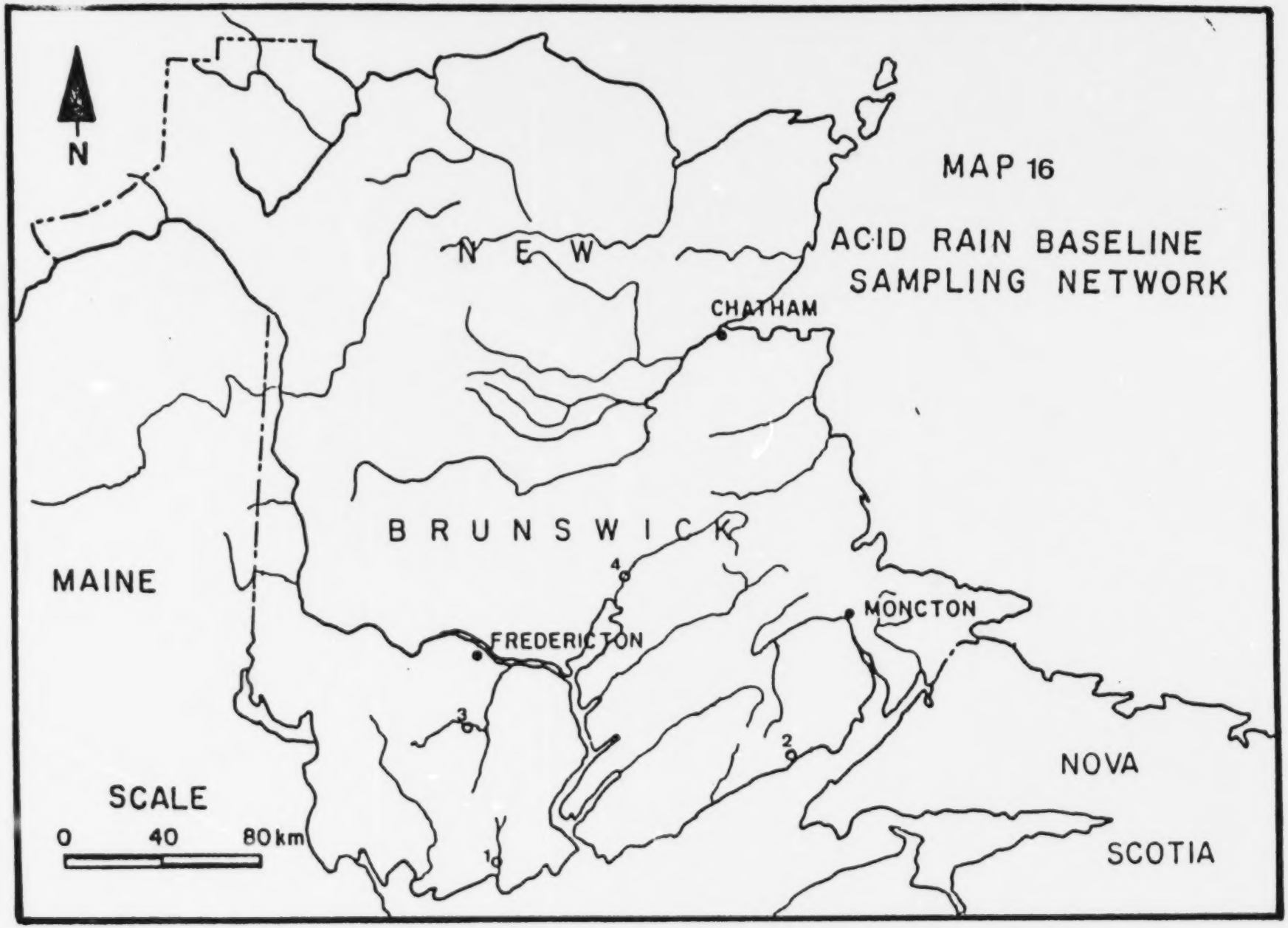
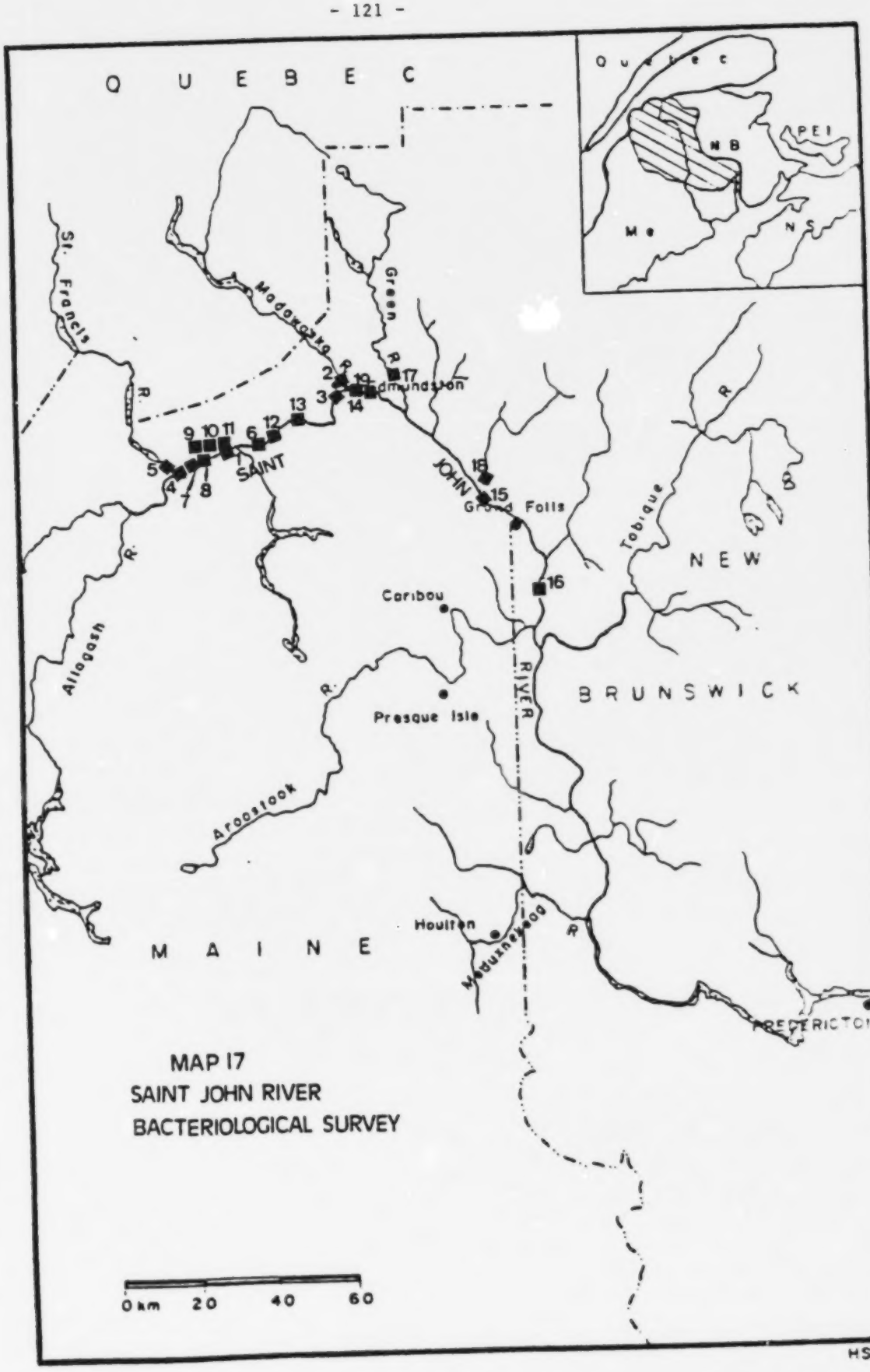
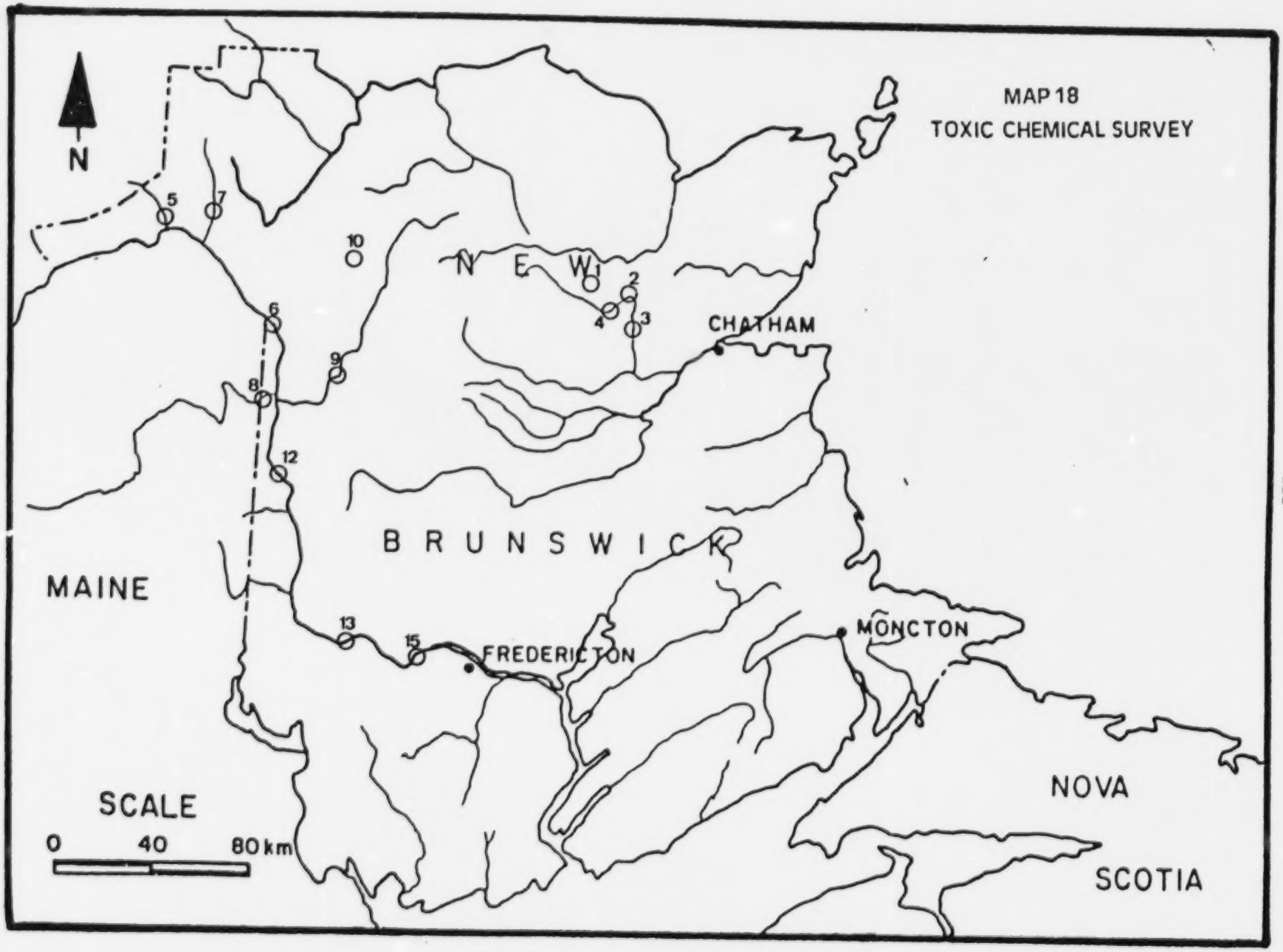
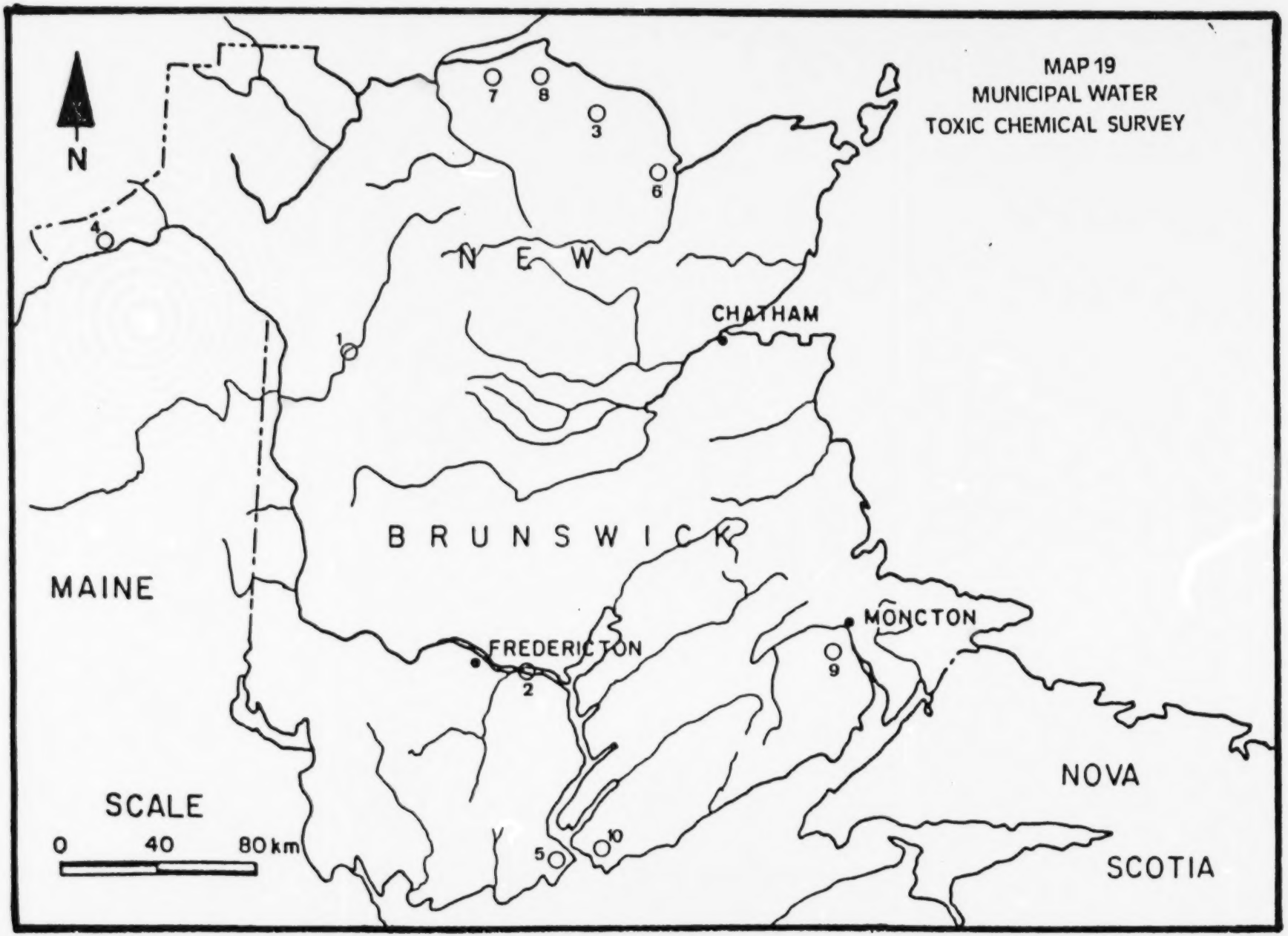

N
MAP 16
ACID RAIN BASELINE
SAMPLING NETWORK
N E W
CHATHAM
BRUNSWICK
MAINE
FREDERICTON
MONCTON
NOVA
SCOTIA
1
2
3
4
SCALE
0 40 80km



MAP 17
SAINT JOHN RIVER
BACTERIOLOGICAL SURVEY


MAP 18
TOXIC CHEMICAL SURVEY
N
N E W
1
2
3
4
5
6
7
8
9
10
12
13
15
CHATHAM
BRUNSWICK
MAINE
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80 km


MAP 19
MUNICIPAL WATER
TOXIC CHEMICAL SURVEY
N
N E W
B R U N S W I C K
MAINE
CHATHAM
FREDERICTON
MONCTON
NOVA
SCOTIA
SCALE
0 40 80 km
1
2
3
4
5
6
7
8
9
10